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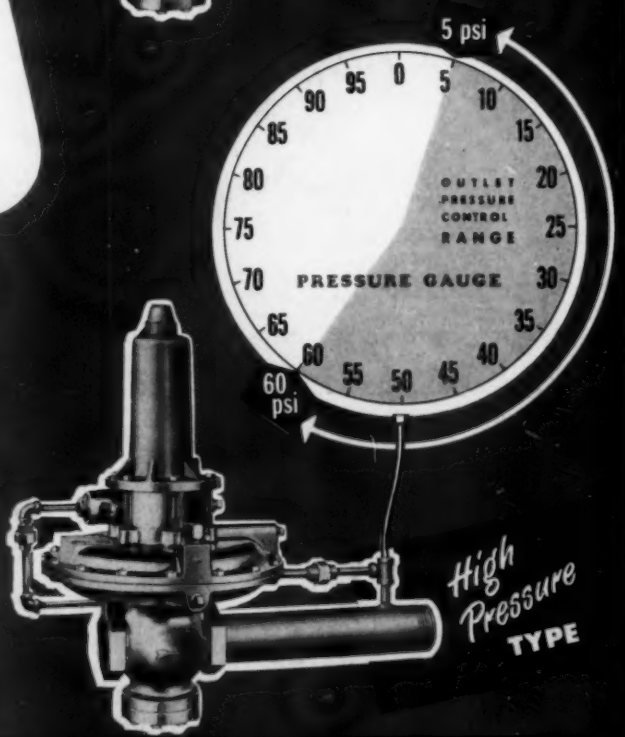
AMERICAN GAS JOURNAL

91st YEAR FEBRUARY 1949 VOL. 170 NO.

ROCKWELL

EMCO
"1001"
REGULATORS

GIVE
EXTREME CONTROL ACCURACY
OVER WIDEST OUTLET
PRESSURE RANGES



...are the most versatile regulators made. Here's three ...and one application ... including small distribution ...team control industrial furnaces, large appliances, big ...gas settings and many others outside the field of special ...ed equipment. Pilot loaded diaphragm assures extreme ...sensitivity and accuracy. Will handle inlet pressures up to ...50 psi. Made in 2 in. size only, high and low pressure ...models. Economically priced. Write for bulletin 1059.

PITTSBURGH EQUITABLE METER DIVISION
Rockwell Manufacturing Company • Pittsburgh 8, Pa.
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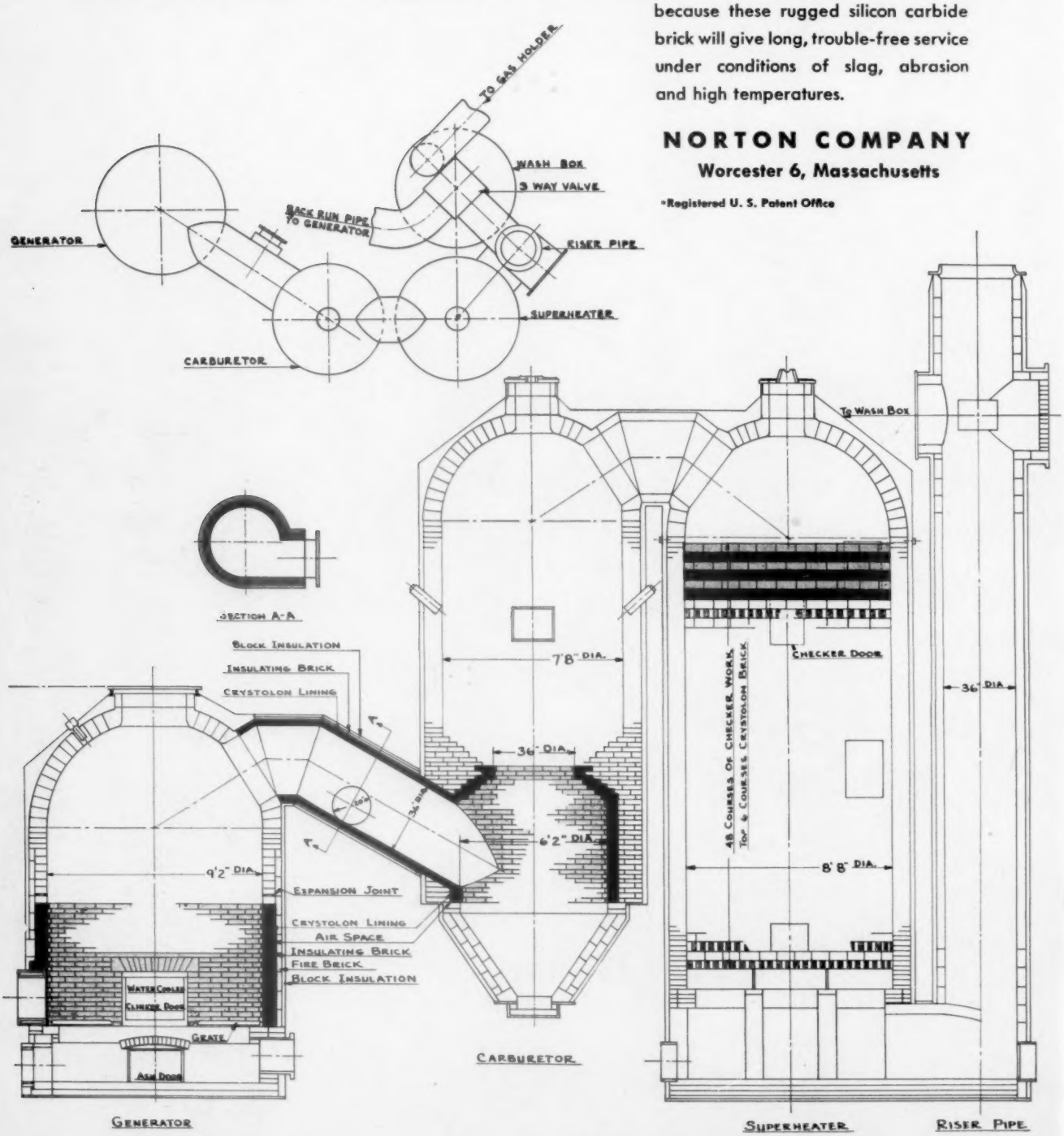
In Generator, Carburetor and Superheater It Pays to Install CRYSTOLON* Brick

The drawing below shows the installation of CRYSTOLON Brick in a reverse flow, open carburetor type of water gas set. Twenty-four courses of CRYSTOLON Brick were laid in the generator, extending up five feet from the grate line. A full lining of CRYSTOLON Brick was set in the generator offtake, and 28 courses of these brick were laid in the base of the carburetor. In some recent installations six courses of CRYSTOLON Brick have also been added to the checkerwork in the top of the superheater. CRYSTOLON Brick are selected because these rugged silicon carbide brick will give long, trouble-free service under conditions of slag, abrasion and high temperatures.

NORTON COMPANY
Worcester 6, Massachusetts

*Registered U. S. Patent Office



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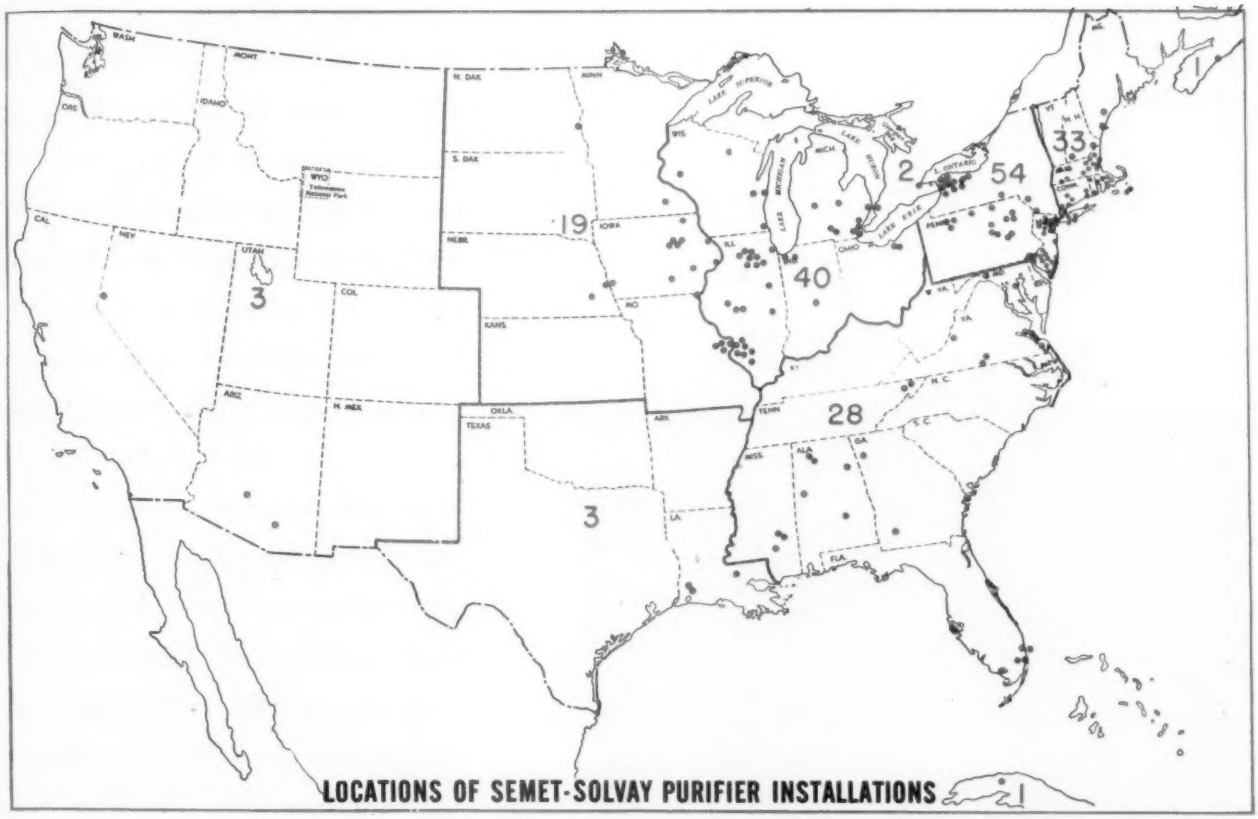
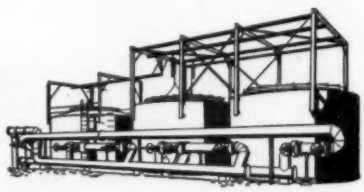
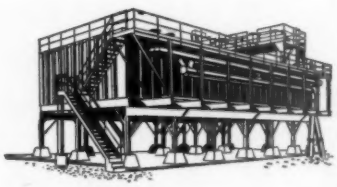


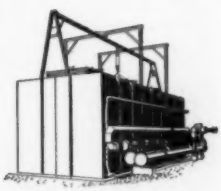
LOCATIONS OF SEMET-SOLVAY PURIFIER INSTALLATIONS

828 million cubic feet of gas per day handled by Semet-Solvay Purifiers...



It wasn't until we worked out this figure the other day that we realized the full acceptance of our purifiers. We knew that ours were the first purifiers to be welded in the field, thus saving our customers considerable expense. We knew that ours were the first to use entirely wooden trays with corrosion-proof wooden dowels, thus providing far longer service. We knew that the Semet-Solvay piping manifold and valves made the complete installation more desirable. We knew that a most satisfying number of plants, with an original installation of a Semet-Solvay Purifier, placed repeat orders with us. But, after we had added up the total installations and their capacities, we felt that you, too, would be interested in these figures as a measurement of the true worth of a Semet-Solvay Purifier.



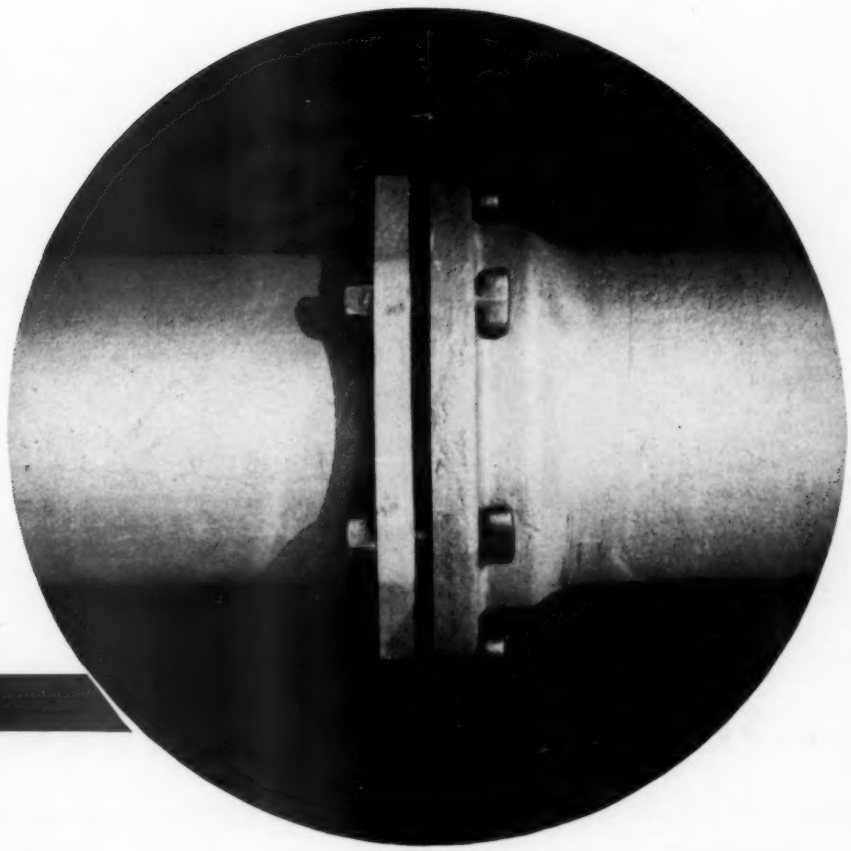


SEMET-SOLVAY ENGINEERING DIVISION
40 RECTOR ST., NEW YORK 6, N.Y.
ALLIED CHEMICAL & DYE CORPORATION

When you say that a gas main has long life and bottle-tight joints, you say it all. Gas mains installed a century or more ago, and still in use, prove that cast iron pipe has *long life.* They also testify to the serviceability of the bell-and-spigot joint. Mechanical joint cast iron pipe, installed over the past quarter-century, proves that mechanical joints are *bottle-tight* for all types of gas and at high pressures. Mechanical joint cast iron pipe has certain other advantages. More footage can be laid per day with minimum equipment—with less delays in wet weather and less difficulty with wet trenches—and with lower labor cost. Cast Iron Pipe Research Assn., T. F. Wolfe, Engr., Peoples Gas Bldg., Chicago 3.

● Unretouched photograph of a cast iron gas main installed a century ago by Hartford Gas Company, Hartford, Conn.

● Many important gas utilities have standardized on standardized mechanical joint cast iron pipe for all types of gas at high pressures.



STANDARDIZE ON

CAST IRON

STANDARDIZED MECHANICAL JOINT

PIPE

..STRAIGHT PIPE TAKES CURVES IN STRIDE

Problem: *To lay pipe along a curving suburban street at lowest cost, with least delay.*

Solution: *Use pipe joints that permit deflection to avoid the use of special bends—Dresser Couplings.*

* * *

When the layout of a pipe line calls for a gradual curve, you can often eliminate the need for special bends by using a Dresser-Coupled line.

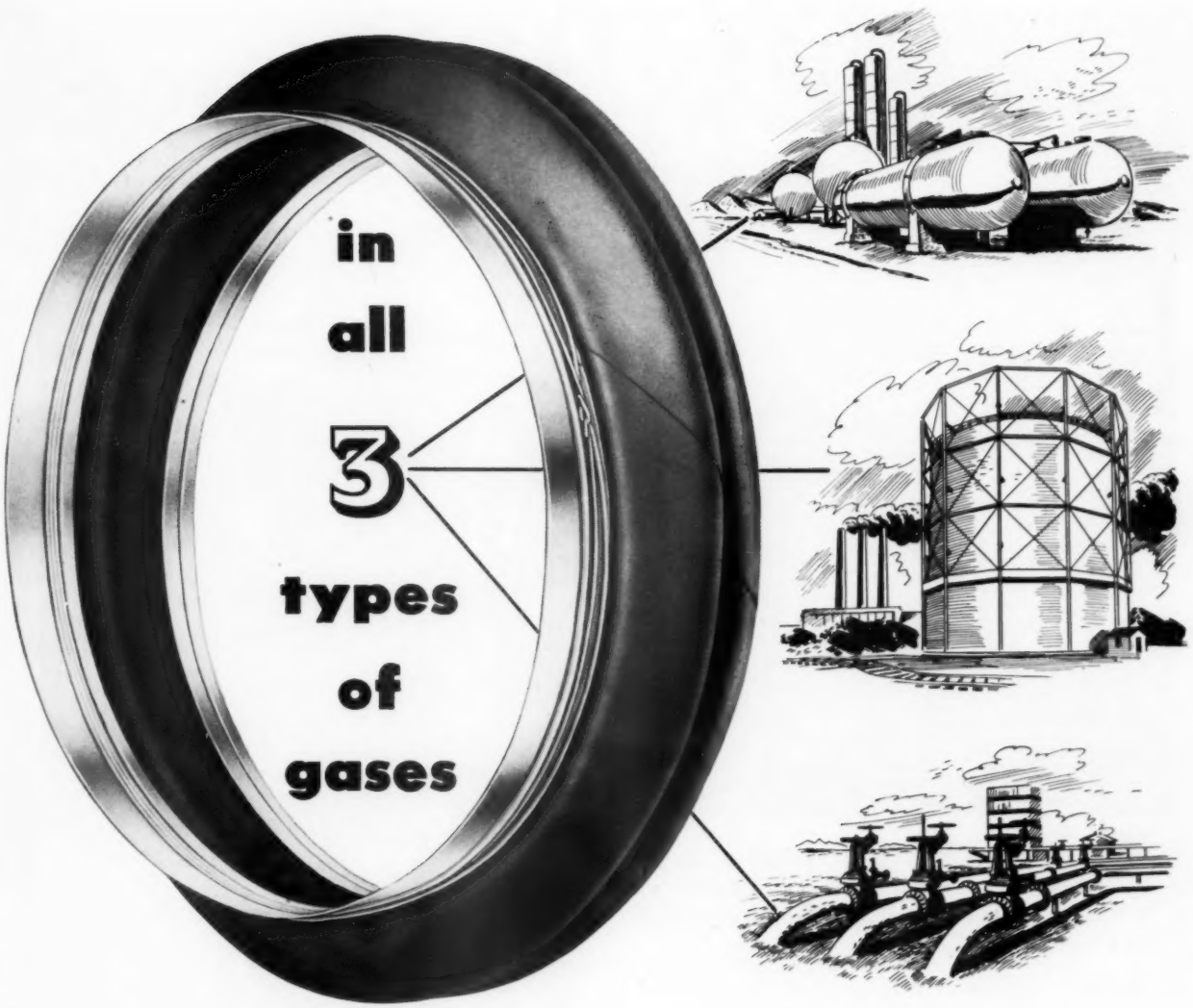
Dressers permit the deflection of pipe by as much as 4° at each joint, enabling you to make "curves" with straight, plain-end pipe. This characteristic of the couplings is a valuable timesaver because it does away with waiting for specials to be made in the shop and trucked out to the job. Obviously, it also eliminates the cost of making the specials.

In city streets, unexpected underground obstacles frequently are encountered. The flexibility of the Dresser Couplings permits you to go over, under or around these obstacles. On deflected and offset pipe, Dressers make permanently tight joints every time. Their resilient, rubber compound pack safeguards the line against joint failure from vibration, earth settlement and other underground stresses.

For economy, convenience and long-time dependability, specify a Dresser-Coupled line. And remember —it's always good practice to order your couplings when you order your pipe.

DRESSER "FLEXIBLE-TIGHT" **COUPLINGS**

Dresser Manufacturing Division, 59 Fisher Ave., Bradford, Pa. (One of the Dresser Industries)—In Texas: 1121 Rothwell St., Houston —In Canada: Dresser Mfg. Co., Ltd., 629 Adelaide St., W., Toronto, Ont.—Sales Offices: New York, Chicago, Houston, San Francisco.



Vulcan Diaphragms Excel!

Whether the gas is manufactured, natural or L.P., VULCAN Diaphragms for meters and regulators give an outstanding performance.

The VULCAN Molded Loop is streamlined, smooth and perfectly balanced, free from irregularities of shape. Because of vulcanizing to the rings, plus extra fastening with special wire, tie leaks are virtually impossible.

VULCAN Diaphragms remain pliant and flexible, with no need for oiling. They do not dry out and become brittle, and successfully withstand the drying effects of both natural and L.P. gases.

For more accurate metering, follow the lead of engineers everywhere. Specify and insist on VULCAN Diaphragms.

VULCAN RUBBER PRODUCTS MADE IN BROOKLYN N.Y. VULCAN PROOFING CO

"THE MARK OF QUALITY"

Vulcan

PROOFING COMPANY

FIRST AVENUE & 58th STREET • BROOKLYN 20, NEW YORK

Look to GASMACO in 1949

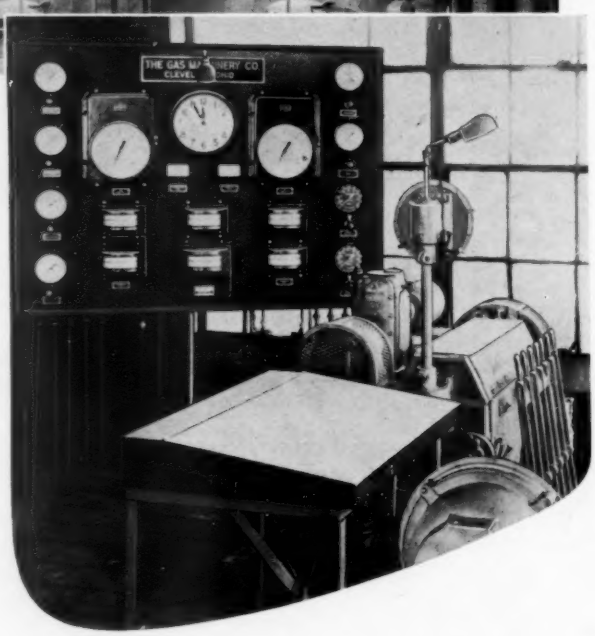
THE 12′ x 12′ x 12′ Hi-BTU Oil Gas set shown above is capable of producing 200,000 to 250,000 CFH — a thermal output of 250,000,000 BTU per hour.

Gas made by the Hi-BTU process is an interchangeable stand-by for either natural or manufactured gas and can increase both your plant and distribution capacity at lowest cost.

All new construction may be used as shown above, or existing water gas facilities can be economically converted. Gas can be produced by either a single or double generator arrangement.

The Gasmaco Automatic Time Cycle and Thermal Control with gage board, shown on the right, is particularly well suited for control of this process.

The Gas Machinery Company can offer new equipment for the efficient production of Hi-BTU gas from Bunker oils. The same equipment, by proper operating techniques, may be used with any good gasifying oil. This well lends itself to "following the market" for oils.



GASMACO engineers are available at all times to provide helpful information and advise you on your requirements.

Write for Bulletin A-202

LOOK TO GASMACO IN 1949

LOOK TO GASMACO FOR THE FUTURE

THE GAS MACHINERY COMPANY

16112 WATERLOO ROAD
CLEVELAND 10, OHIO

Designers • Fabricators • Erectors

Gas Plant Equipment and Industrial Furnaces

VOLUME 170
Number 2

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CONTENTS

Hi-BTU Oil Gas Replaces Natural at Port Stanley, Ontario 11

Eastern Natural Gas Regional Sales Conference 15

Plant Operation in Relation to Utilization—Warren C. Churchill 17

O'Conner Gives Views on European Recovery 19

Principles and Maintenance of Orifice Meters—
Richard E. King 20

New England Gas Assn.—Operating Division Meeting 23

New Equipment for Clearing Drips and Services 24

1948 Legal Can and Can't—Leo T. Parker 27

Catalytic Cracking Plant at Reading, Pa. 29

L. P. Gas Installation Withstands Cyclone—W. C. Eggert ... 32

Educational Program, Institute of Gas Technology 34

Catalytic Plants for Base Load 35

New Equipment and Appliances 36

News of the Gas Industry 37

Book Reviews 46

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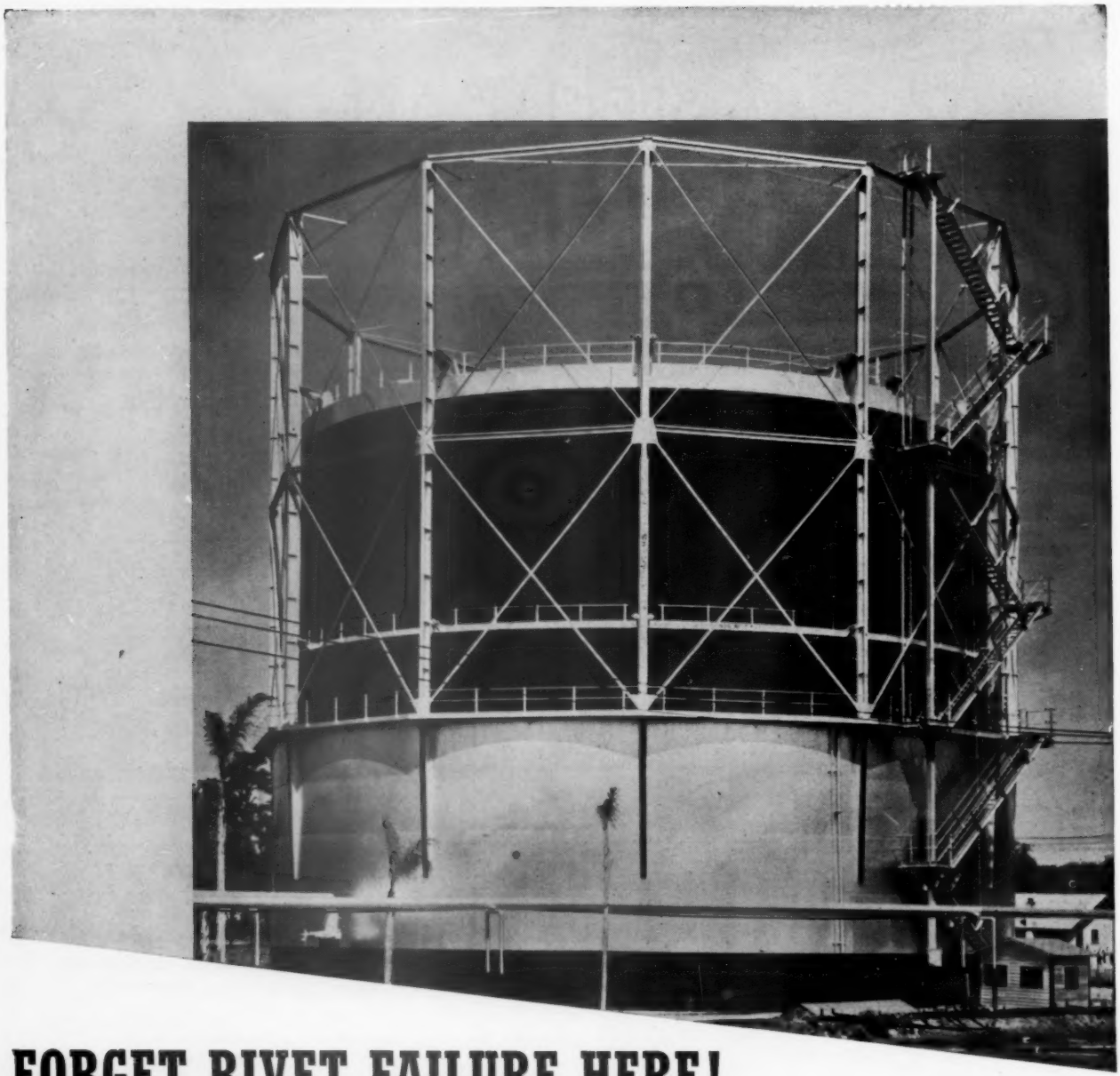


FORGET RIVET FAILURE HERE!

There *aren't* any rivets to fail in this Stacey Brothers All-Welded Panel Type Gas Holder.

That's one important advantage of this type of construction, a Stacey Brothers feature. There are others, too—greater strength, more efficient operation, less maintenance expense.

It's reasons like these that have influenced the choice of Stacey Brothers for tanks. The installation pictured is typical—a 500,000 cu. ft. All-Welded Panel Design Wet Seal Holder.

Our experience includes more than three hundred distinct types of tanks—any practical size or shape—with gas holders ranging in capacities from 100 cu. ft. up to 10,000,000. We fabricate as light as No. 16 gauge sheet metal, and up to three inches thick.

Whether your needs are standard—or unusual—there's a Stacey Brothers Holder, *custom built* to fit your requirements. No problem is too tough for us—or too routine. We'll take *complete* responsibility for design, manufacture and erection. That way you save both time and money. We make it our business to deliver dependable, economical holder capacity. May we submit our quotation and recommendations, based on your own specifications and drawings?

STACEY BROTHERS GAS CONSTRUCTION CO.
One of the Dresser Industries
5535 VINE STREET CINCINNATI 16, OHIO

Stacey Brothers
ALL-WELDED GAS HOLDERS

FEBRUARY
1949

AMERICAN
GAS JOURNAL

VOLUME 170
NO. 2

Hi-BTU Oil Gas Replaces Natural At Port Stanley, Ontario

THE NEW $2,500,000 Hi-BTU Oil Gas plant at Port Stanley, Ontario, represents a high degree of cooperation between engineers, utility operators, and suppliers on both sides of the border. Built when materials were scarce both in Canada and in the U. S.; when contractors were busy and labor, skilled or unskilled, was hard to find; when export and import regulations necessarily imposed extra clerical burdens, the plant was nevertheless constructed in record time.

In July, 1947, the site of the plant was still a cornfield. Plans were started and the ordering of equipment and materials begun at that time. Actual construction was commenced in the spring of 1948 and the first gas made on November 8, 1948.

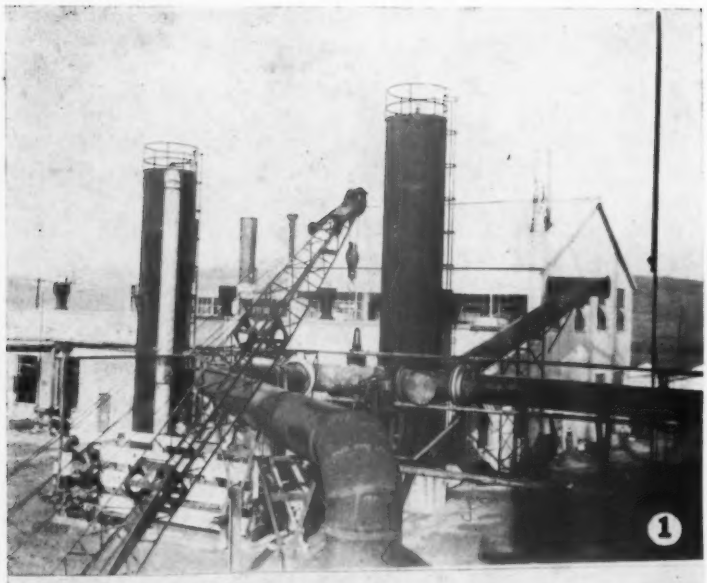
In this article we see a transposal of the recognized support given the manufactured gas plant by the use of natural gas as adjunct to augment Btu-value or to supplement supply.
Here in contrast, manufactured oil gas rises to the rescue to overcome a shortage of natural gas in a territory where the latter is in short supply.—Ed.

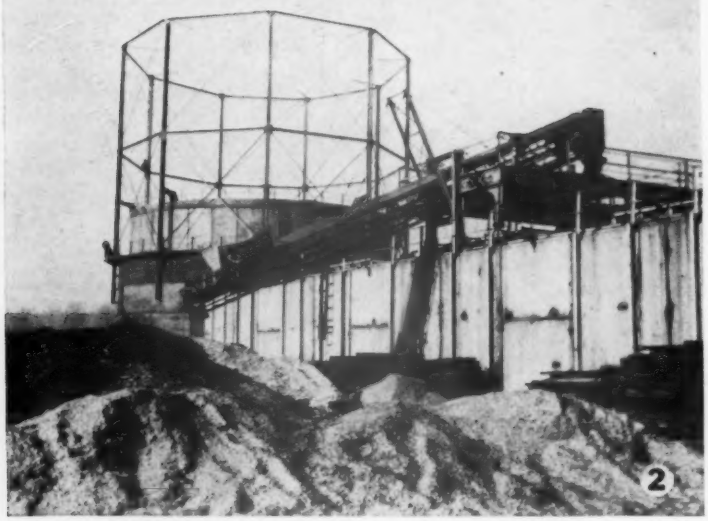
This is probably the first complete plant built from the ground up for the sole purpose of replacing a failing natural gas supply. The history and reasons which prompted the Dominion Natural Gas Company to construct such a plant should be of interest to the reader.

Area Served

Dominion Natural has been supplying numerous communities on the northern shore of Lake Erie. This has been a natural gas supply from local gas wells, augmented in recent years by a propane-air plant at

General view of the plant, the relief or primary holder on the left. This holder is somewhat larger than would ordinarily be used. Thus it serves as a primary storage holder in addition to its usual function as a relief holder. It also makes a fairly effective condenser in the wintertime; because of its large area, it reduces the gas temperature considerably.





1. View during construction shows some of the main gas piping, cooling scrubber, and oil scrubber. The buildings in the background house the gas generators, boilers, compressors, and auxiliary equipment.
2. This view of purifier boxes shows stock of spare trays and iron oxide storage. The traveling oxide conveyor is shown. The storage holder shown is small compared to other manufactured gas works because the primary function of this plant is generation and transmission rather than storage.

Brantford, Ont. The gradual increasing consumer demand brought on a condition which has been felt and is still being experienced by many other gas companies. In this case there was no new source of natural gas to tap; no long distance natural gas transmission was immediately available. Propane was becoming scarcer and more expensive.

Selection of Process

Oil as a gas making material can be stored easily in sizeable quantities. Because of this and its possibilities for clean automatic operation, oil appeared to be the perfect fuel if a suitable process were available. In studying this situation, attention was directed to the Hamilton Works of the United Gas & Fuel Co. of Hamilton, Ltd., where new oil-gas generating equipment had been installed. This was a new high Btu oil gas process just developed by Mr. Hugh M. Blain of the New Orleans Public Service Company in conjunction with The Gas Machinery Company of Cleveland, Ohio. At that time, the process was referred to as the "Twin-Generator" process but has since become generally known as "Hi-BTU Oil Gas" since the process can be carried out with either single or double generators. It was this process which the management of the Dominion Natural Gas Co. decided on as the basis for new production and a general description of the equipment and process is in order.

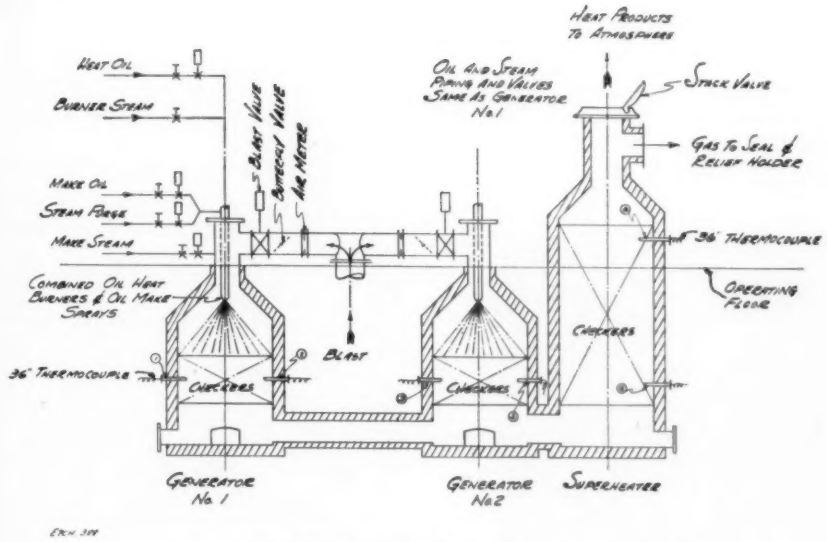
Generating Units

In many ways the equipment resembles a three shell water gas set. This is more accidental than fundamental and occurs because development work was done on water gas sets and because it is desirable in many instances to convert water gas machines to Hi-BTU Oil Gas.

When two generators are used, one is usually referred to as Generator No. 1 and the other as Generator No. 2. The two generators are joined at the base and, in turn, are joined to a superheater. The construction of the two generators is identical as these operate in parallel. Refractory arches are installed in each generator base to support ten to twelve courses of high heat storage fire brick usually staggered and spaced 1½". Four or five courses of these brick can be silicon carbide because of their special advantage in heat storage and general behavior under the operating conditions at this point. The balance of the checker work can be a good grade of fire clay checkers.

The generators are built with cone tops and the top of the cone is fitted with a special tee. This tee makes provision for the blast connection, process and purge steam, lighter opening, and shutter adjustment for the control of blast air in order to regulate combustion and heat distribution. The top flange of the tee is arranged for the insertion of the

3. Purifier boxes, showing manifold with valve platform, purifier covers, and traveling cover lifting crane. Storage holder is under construction in the background.



HI-BTU OIL-GAS PROCESS - PATENT PENDING

make oil spray, heat oil burner, and the necessary atomization and spray purge connections, as well as provision for sight cocks.

The superheater checkers are usually a good grade of fire clay, are staggered and spaced 2". Some variation in this spacing is permissible, depending on the quality of the oil used. The top of the superheater is fitted with a stack valve and stack and a gas take-off connection. The gas take-off piping runs to a seal having the dip pipe sometimes fitted with a spray ring.

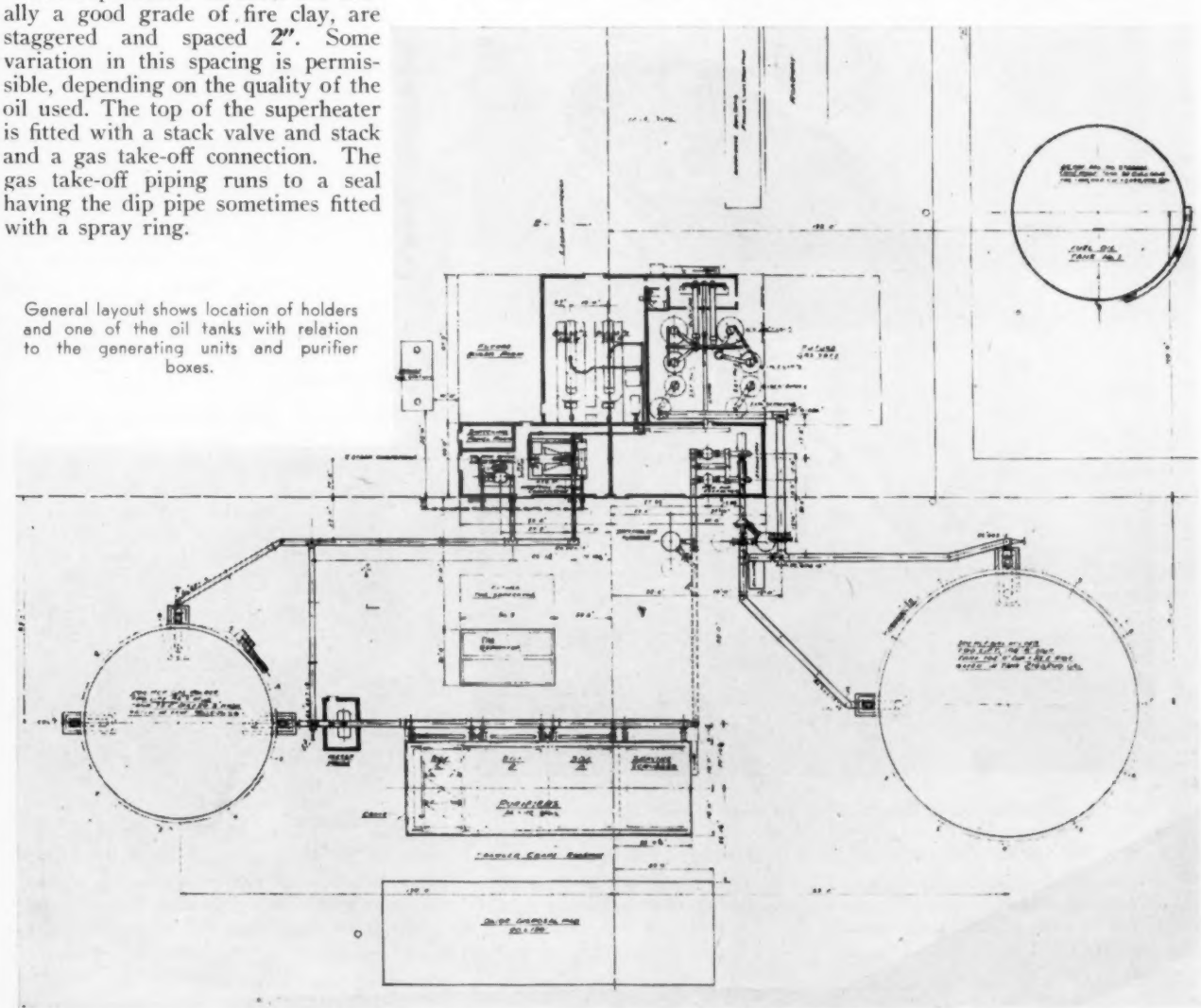
By Products

Once beyond the seal, the gases are treated as in standard water gas practice. Provision should be made for handling larger amounts of tar since more tar is made by this process than from the same volume of water gas. Dependent upon local conditions relating to the amount of gas to be made and its use, it is well to consider the installation of an oil scrubber as a means of eliminating light oils, naphthalenes, and gum formers.

Operation

The process is cyclic and consists of approximately 60% blast, 33% make, 7% purge and lost time. The generators are fired with liquid fuel and downwardly, the products of combustion passing through the bottom connections to the superheater and upward to the stack. The "make" follows the path of combustion, i.e., the make is down through the generators and up through the superheaters to the seal offtake.

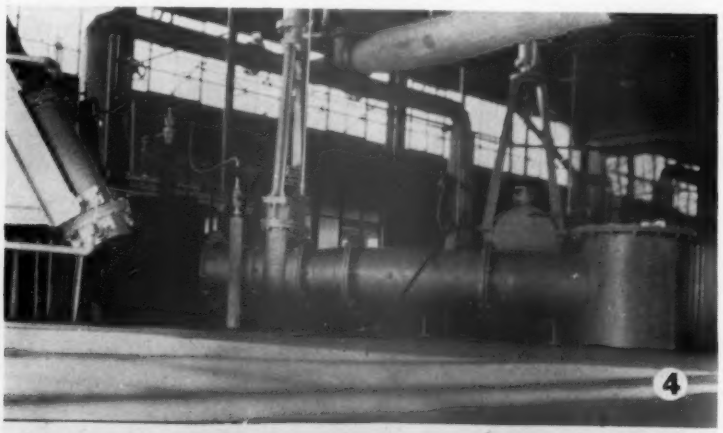
The process is basically a temperature and time of contact process. While a time cycle is used, it is cor-

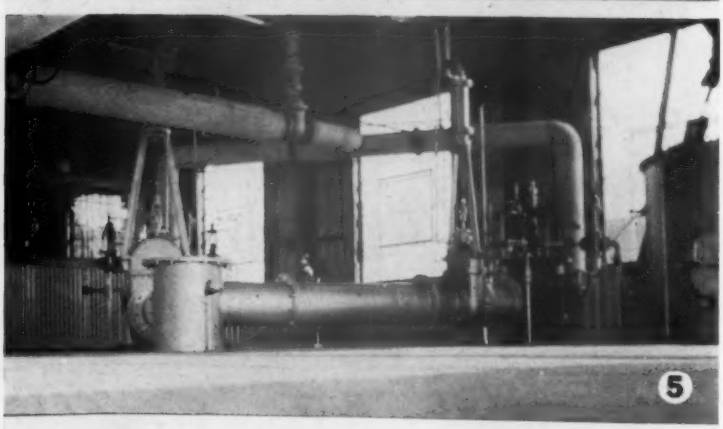


General layout shows location of holders and one of the oil tanks with relation to the generating units and purifier boxes.

rected for by the use of a thermal control.

Any conceivable type of liquid fuel can be used for heating, including tar. The process oil, however, should have special characteristics. A great many oil are suitable for this purpose, notably straight run gas oils and some crudes. With modifications to the equipment and with special operating techniques, it is possible also to employ heavy high carbon oils of the Bunker C type.





4. Operating floor level, shows top tees at each of the twin generators of one oil gas set. The air blast, steam and oil lines can be seen in this picture with their control valves.

5. Another view of operating floor shows air blast, steam and oil lines with controls. A portion of the superheater and stack can be seen on the right. Control room is in left background.

6. During construction; tar and liquor pumps in the foreground; below grade tar and liquor separator adjacent to pumps. A portion of the compressor building and gas piping are in the background.

Gas Analysis

Typical analyses of the gas (approximately 1000 B.T.U.) produced at Port Stanley are given in the adjoining table:

As the quality and characteristics of natural gases vary, the oil gases can be "tailored" to suit by proper operation. The analyses given here represent various test runs made by the Dominion Co. The final gas which is now being standardized will be one as nearly as possible equivalent to the natural gas in their territory. In this connection, an interchangeability study was made by staff engineers of the Gas Machinery Company. This study indicated that an oil gas could be made and distributed to be interchangeable not only with the natural gas but with the various proportions of propane-air as are sometimes added. Actual appliance operation in the field is bearing out the indications of the interchangeability study.

Location

Port Stanley, Ont., was selected as the location for the proposed plant, primarily because of its port facilities which permit receipt of oil by water at substantial savings. This location is still within the boundaries of the territory served by the Dominion Natural Gas Co. Ten miles of 8" high pressure gas pipe line, however, were required to connect the plant compressor station with Dominion's main gas pipe-line system.

Engineering

The planning and construction of the plant has been under the direction of Mr. H. E. Merrill, Chief Engineer of the Dominion Natural Gas Co. Mr. Merrill is also associated with the Republic Light Heat & Power Co., with headquarters in Buffalo, N. Y. The Salem Engineering Company, of Toronto, furnished most of the plant design details and was the major contractor for the plant's construction. The Gas Machinery Company, of Cleveland, Ohio, furnished special engineering and equipment relating to the Hi-Btu process.

Equipment

The plant as now constructed contains two oil gas generating sets, two modern oil fired boilers, two storage holders, exhausters, washer cooler, tar extractors, purifiers, oil scrubber, meter and a compressing station. Both steam and electric power are

ANALYSES OF GAS PRODUCED

Analysis No.	*1*	*2*	*3*	*4*	*5*	*6*
CO_2	3.6	2.4	2.6	3.0	3.3	2.8
Ill.	26.9	25.3	23.3	23.4	21.6	28.9
O_2	0.5	0.8	0.6	0.3	0.9	1.0
CO	1.3	0.3	0.1	0.7	0.2	0.5
H_2	11.1	11.4	16.0	19.3	20.3	16.5
CH_4	34.3	35.3	37.4	35.4	37.7	32.8
C_2H_6	4.6	3.2	2.1	1.2	1.6	2.2
N_2	17.7	21.3	17.9	16.7	14.4	15.3
Sp. Gr.	.788	.796	—	.73	.700	.796

used for the compressors, blowers and the numerous pumps, etc.

Capacity

The plant can produce and deliver into the company's pipe lines six million (6,000,000) cubic feet daily of 1000 Btu gas. This will result in a daily consumption of approximately seventy-two thousand (72,000) gallons of oil. Many thousands of gallons of water will also be handled. Provision has been made for future expansion of gas generating equipment, with corresponding increase in oil storage and other facilities.

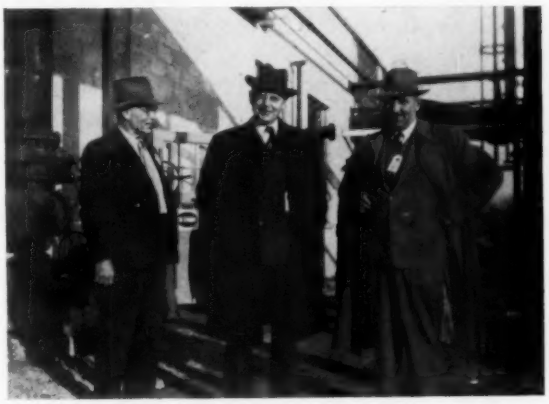
The total oil storage on the premises amounts to seven million (7,000,000) gallons, which is enough to supply the gas requirements for one entire winter season based on supplementing the present natural gas supply.

The company maintains a well equipped laboratory for the analysis of oil, gas and the products used and produced at the plant. Close chemical control is maintained on the boilers, purifiers, and other equipment.

Supervision

According to Mr. S. B. Severson, President of the Dominion Co., the operation of the plant will be under the general supervision of F. D. Howell, Division Superintendent of the Dominion Natural Gas Co., in charge of the St. Thomas and Brantford areas; George Stammers, of Port Stanley, is the plant superintendent; W. H. Greason, also of Port Stanley, is the Chemical Engineer; Frank Kondal and John Wills are Plant Foremen.

Opening ceremonies took place at Port Stanley on December 3, 1948. The inspection was attended by officials of the Dominion Natural Gas Co., the Ontario Government, and of the towns and cities served by the company, also officials of numerous banks, contractors, and suppliers. Many present expressed the opinion that this type of plant construction and the foresight taken to build it may be the answer not only to this area's problem, but to other utility systems as well.



At the opening ceremonies: L. to R.: Harry E. Merrill, Chief Engineer, Dominion Natural Gas Co.; The Hon. Leslie Frost, Minister of Mines of Ontario and A. R. Crozier, Gas Controller of Ontario.

Eastern Natural Gas Regional Sales Conference To Stress New Sales Techniques for 1949

THE Eastern Natural Gas Regional Sales Council has arranged a program replete with ideas on how to sell gas and gas appliances for its annual conference at the William Penn Hotel, Pittsburgh, March 14 and 15, under the sponsorship of the Residential Gas Section, American Gas Association. "Get out and sell it" has replaced "Come in and select it" as the gas utility sales manager's credo for 1949.

Raymond Little, general sales manager, Equitable Gas Co., chairman of the Eastern Natural Gas Regional Sales Council, and his program committee have secured outstanding speakers from within and without the gas industry to present the many facets of salesmanship during the two day conference. Selling the gas industry to itself and to the public will be the theme of the keynote address by Robert W. Hendee, president, Colorado Interstate Gas Co., and president, American Gas Association, in opening the program on Monday, March 14. The importance of Home Service in keeping the public sold will be dramatized in a sketch by a bevy of beauties from the Equitable Gas Company, utilizing a variety of gas appliances.

The coming year will see an intensive sales, advertising and promotion campaign waged in the field of automatic gas water heating. Stanley G. Gorman, sales promotion director of G.A.M.A.'s Water Heating Division, will present the coming "Court of Flame" program, destined to glamorize the automatic gas water heater, the Cinderella of the gas industry.

Advertising and Promotion

The coordinated advertising and promotion effort carried on by A.G.A., the gas utilities, the gas appliance manufacturers and dealers last year, avalanched into an $8,000,000 campaign and resulted in a rise of nearly 25 per cent in sales of gas ranges of all types, with "CP" range sales increasing 300 per cent. Our competitors admit the success of the "Gas Has Got It" campaign and are doing something about it. Cecil Dunn, Estate Heatrola Division, will highlight some of the salient features of modern "CP" ranges that can be

used to offset competitive sales effort.

W. S. Redpath, Ketchum, MacLeod & Grove, advertising agency in Pittsburgh, Pa., will stress the necessity of tie-ing in the national advertising of A.G.A. and the "CP" range manufacturers at local levels at the afternoon session on Monday. James E. Humphreys, advertising and sales manager, Ohio Fuel Gas Co., Columbus, will be chairman at the afternoon meeting.

House Heating

Restrictions on gas sales in certain areas have limited gas house heating sales. The A.G.A. House Heating Committee has been active in a program of upgrading gas house heating installations as a basis of sales operations until full scale efforts in this important field can be resumed. H. Preston Morehouse, asst. sales manager, Public Service Electric & Gas Co. of New Jersey, and vice-chairman, Residential Gas Section, A.G.A. will review the work of the House Heating Committee along these lines.

Peak loads and seasonal valleys ever have been the problem of gas utility management. A new gas heating appliance made its initial bow at the recent convention at Atlantic City, and attracted great attention. Marvin Smith, vice-president, Muncie Gear Works, Inc., Muncie, Ind. will have an interesting story to tell on the Gas Heat Pump. He will frankly outline its operating and installation costs, its market potentialities and its possible effects on peak loads.

Cy Young, research engineer for Gas Service Co., Kansas City, Mo., has devoted considerable time and effort seeking solutions to the peak load problem. He will discuss a new combination gas and oil burner that can be switched from one fuel to the other in periods of short supply, as one means of shaving peak loads for the gas industry.

Management Policies

Top management must recognize changes in public opinion and in markets. Methods for changing management policies to meet the new trends will be presented in an inspirational talk by Professor Erwin H. Schell, Head of Business Administration, Massachusetts Institute of Technology, as the closing address of the Monday afternoon session.

Sales of utility gas and sales of gas appliances are so closely interdependent as to be almost inseparable. The Conference Program Committee, with this truth in mind has devoted the major emphasis in Tuesday's program to gas appliances. Harold Massey, asst. managing director, Gas Appliance Manufacturers Association, is presiding chairman at the morning session on Tuesday Frank J. Nugent, sales promotion director, Bryant Heater Co., Cleveland and president, G.A.M.A., will forecast what is ahead for gas appliances in 1949.

The Markets

C. H. Rippe, sales director, Home Appliance Division, Hamilton Manufacturing Co., Two Rivers, Wis., will discuss the market possibilities and load building potential of the automatic gas laundry dryer. Gas incineration is another fast growing use for gas and Dr. A. W. Gauger, Pennsylvania State College, will report results of research and technical studies made in this field under the A.G.A. Domestic Research Program. From the sales manager's point of view, gas incineration has many advantages and Ira J. Rapson, Michigan Consolidated Gas Co., Detroit, will present some of these points in discussing his company's sales and promotional program.

(Concluded on page 46)

THE STORAGE TANK
WILL LAST LONGER WITH

"Elno"
Trade Mark

THE MAGIC WAND

Now you can tell your customers that the storage tank will last twice as long as heretofore. That is, if you insert an "Elno" — the magic magnesium-alloy rod — into the storage tank.

"Elno" is a great advance in water heating. It prevents corrosion of the storage tank, and eliminates rusty water caused by storage tank corrosion.

"Elno" Protectors are made to fit all makes of Automatic Storage Water Heaters and Large Volume Hot Water Storage Tanks. There is an "Elno" Protector made to fit the water heater you sell.

They are easy to install. "Elno" Protectors are made with a hot water fitting to match the fitting on the water heater you sell. Remove the hot water fitting and replace it with the "Elno" rod. Use a sectional "Elno" if the water heater is already installed.

Cash in on this new selling feature: "Elno" Protection. Send for catalog and prices.

"ELNO" THE ORIGINAL ANODIC ROD
Look for the Trade Mark

THE CLEVELAND HEATER CO.
2310 Superior Avenue Cleveland 14, Ohio

Plant Operation in Relation to Utilization

By
Warren E. Churchill
Chief Chemist
Boston Consolidated Gas Company

THE present day gas plant operator may now be called upon to use as many as six or seven different gases in obtaining the necessary production rate to meet winter load conditions.

When it is considered that he must not only gauge his production rate properly, making due allowances for the unexpected departures from the weather predictions, but must also deliver a sendout gas which will burn with characteristics closely approaching those on which the customer appliances have been adjusted, the need for an additional operating guide is apparent.

The specific gravity recorder and recording calorimeter are now indispensable to the operator but with the third factor "combustion characteristics" still unmeasured he cannot have direct control of this important property.

The need for an instrument which will indicate and record the combustion characteristics of fuel gases has been realized for years but as yet the difficulties involved have so far been insurmountable.

In 1940 a valuable contribution toward the solution of this problem was made by Louis Shnidman and Jesse S. Yeaw, of the Rochester Gas and Electric Corporation with the publication* "Determination of the Combustion Characteristics of Fuel Gases," and "The Test Burner and its Application in the Control of Gas Quality."

The authors showed with complete test data and curves that by calibrating a relatively simple test burner on the gases covering the normal sendout range, it was then possible to use this burner in testing the combustion characteristics of new mixtures to determine their fitness as supplemental gases.

In this work it was also pointed out that mixtures of natural gas with flue gas or air, gave results on the test burner which were misleading if the Burner Number alone was considered. Fortunately the Flashback or Blowoff Number also obtained on this same burner permitted unusable mixtures of this type to be identified.

In 1941 the writer had a test burner made according to the description given for the Rochester Test Burner.

** See American Gas Journal, December, 1940, pages 36 and 38.—Ed.*

In this abstract of the author's paper read at the Operating Division Meeting of New England Gas Association on January 13th, the value of test burner data, correlated with customer complaints is realized. Sudden changes in plant operation present a mixing problem which must be analyzed and adjusted so that complaints may be minimized. A series of nine graphs with related text have been omitted for lack of available space.—Ed.

At this time the burner was used to collect data on what was considered to be our normal sendout gas. Then later readings were taken when variations occurred in the character of the gas during peak loads.

During this period we operated on coke oven gas six months of each year which meant that many of our appliances were adjusted for normal operation on a .40 specific gravity, 530 B.t.u. gas. Meeting peak loads with carburetted water gas gave a specific gravity range from 0.36 to 0.48 from summer to winter operation. When the specific gravity reached .45 or higher our customer complaints increased two or three times the normal figure.

Test Burner Experience

As the following work has been done with the aid of the Rochester type test burner its operation is reviewed briefly at this time.

It consists of an ordinary laboratory bunsen type burner which has been fitted with a graduated dial on the primary air shutter and a flame hood set with its upper edge exactly one inch above the edge of the burner port. A fixed orifice having a #66 M.S.D. opening is installed in the place of the original needle valve. Gas is supplied to the burner at 3.0" water column pressure using two small regulators with an adjustable bleed burner between them.

Under normal circumstances the pressure can be checked on the water filled manometer and readily adjusted when necessary with the needle valve on the bleed burner.

The tendency for a gas to give luminous flames is measured on the test burner by adjusting the primary air shutter until a faint luminous tip appears. The reading thus obtained is called the yellow tip (YT) number.

The next reading, called burner number (B) is obtained by opening the primary air shutter until the inner cone of the flame is exactly one inch high. This cone height is determined by sighting across the top of the flame hood.

The final reading called either the flashback number (FB) or blowoff number (BO) is obtained by slowly opening the primary air shutter until the flame either lights back on the orifice or blows off the burner port.

In fitting the dial to the air shutter the initial adjustment was made so that the dial reading would be 100 with an inner cone height of one inch. The dial was then soldered to the air shutter to insure that all future readings would be comparable on this same basis.

The limits which have been determined as necessary for a gas to give satisfactory combustion characteristics when used on the appliances connected to our lines, are as follows:

The burner number may vary be-

TABLE OF TEST BURNER DATA

	7-10-45	12-6-45	12-14-45	12-13-45
B.t.u.	529	535	529	532
Sp. Gr.	.377	.418	.441	.476
Yt	52	52	54	51
B	100	87	83	79
FB	147	142	135	125
Coke Oven Gas	100%	89.5%	75.6%	75.2%
Carb. Water Gas		10.5%	24.4%	24.8%

tween 92 and 110. Optimum conditions actually exist with burner numbers of 98 to 105. When readings fall below 92 there is a sharp increase in customer complaints due to noisy extinction, flashbacks, and pilot outages.

Burner number readings extending above 110 do not produce as rapid a customer reaction as the low readings just mentioned, but a noticeable increase in refrigerator complaints occurs due to "carbon" stopped flues and accompanying complaints. This latter complaint is actually caused by the refrigerator flues being partially stopped up with corrosion products. This restriction however has not reached the point where the normal flame will give trouble. However with the soft flame indicated by burner numbers above 110, carbon is deposited.

It was obvious that the burning characteristics of our gas in the winter months had changed and the Table of Test Burner data will show the trend:

The data shown in the last column indicates a fast burning mixture which on our appliances at that time would give noisy operation wtih frequent flashbacks.

Propane-Air Used

The soft coal strike of March-April 1946 caused curtailment of our coke oven gas and we obtained further data on gas which caused customer complaints. At this time our new propane plant was nearing completion so at the end of this strike period we also had some propane air in our sendout gas.

	4-1-46	4-6-46
B.t.u.	538	560
Sp. Gr.	.501	.523
YT	53	59
B	83	87
FB	138	130
Coke Oven Gas	66.1%	71.5%
Carb. Water Gas	33.9%	21.8%
880 B.t.u. Propane Air		6.7%

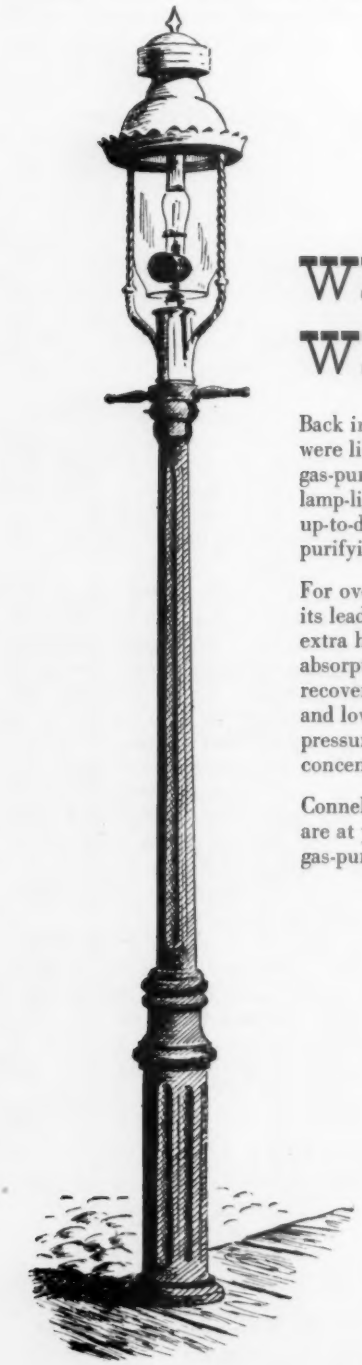
In comparing the above data it should be noted that in using propane air we were compensating for our increased specific gravity by raising the heating value 4 B.t.u. for each .01 increase in specific gravity of the sendout gas. In either case the burner numbers are too low for good appliance operation and the flashback numbers indicate trouble from noisy burner operation and flashbacks. It should be appreciated however that our complaints would have been much higher if we did not have the propane air available.

When load conditions permitted, the use of propane air was omitted and the propane vapor was used for cold enrichment. A marked improvement resulted in the burning characteristics of our sendout gas.

	5-20-46	5-28-46
B.t.u.	567	570
Sp. Gr.	.530	.547
YT	72	73
B	110	110
FB	171	176
Coke Oven Gas	58.6%	64.2%
Carb. Water Gas	39.6%	33.5%
Propane Vapor	1.3%	2.3%
Still Gas (1500 B.t.u.)	0.5%	

It is true however that this improvement in burning characteristics has been obtained at a high cost and a 1% reduction in the sendout for each 5 B.t.u. above 530.

A program was instituted where in the summer time, specific gravity was maintained by the use of LPG Air from falling below .45 and the appliances serviced and sold were adjusted to give normal flames on 530 B.t.u., .50 specific gravity. This work has progressed slowly due to interference of other problems which occur in the extremely hot weather or fall starting up periods, but never-



WHEN GAS LAMPS WERE MODERN . . .

Back in the "good old days," when lamps were lit with gas, Iron Sponge was the *modern* gas-purification material. Today, the old lamp-lighter is gone, but Iron Sponge is still up-to-date—still the most efficient and economical purifying medium obtainable.

For over 74 years, Iron Sponge has retained its leadership because of these advantages . . . extra high activity and capacity, maximum absorption, longer periods between necessary recoverings, fast comeback, low initial cost, and low maintenance costs, ideal for high or low pressure purification and high or low H_2S concentration or mere traces.

Connelly's experience and engineering facilities are at your service. If your problem is gas-purification, consult Connelly.

Other Connelly products include:

CALOROPTIC
A simple, inexpensive instrument for continuous direct readings and BTU control applied to manufactured, natural, propane, and butane air gas.

SMYLY H2S TESTER
A patented device for quick, accurate tests using pre-treated paper discs.

CONNELLY pH TEST KIT
A complete simple outfit for making pH determinations. Includes universal indicator solution, test tubes, color chart and full directions. Handy 3" x 5" pocket carrying case.

CONNELLY Inc.

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Elizabeth, New Jersey • Los Angeles, California

theless the effect has been appreciable.

This past fall possible curtailment of our coke oven supply seemed imminent and it was desirable to find out just how far we could raise the specific gravity using 530 B.t.u., .71 specific gravity carburetted water gas to supplement the 530 B.t.u., .43 specific gravity coke oven gas. This information was needed on short notice and the test burner offered the only satisfactory solution available to us. By setting this burner up in the calorimeter room, the two gases with their respective recorders for B.t.u. and specific gravity were available. . .

Analysis of Complaints

Circumstances regarding the production of coke oven gas and carburetted water gas made it possible to operate with a 525 B.t.u., .426 specific gravity C.O.G. and 440 B.t.u. .69 specific gravity C.W.G., cold enriching with Butane back to 530 B.t.u. for the sendout gas mixture. The unusually mild winter weather which lasted for several weeks kept the sendout down to the point where only 530 B.t.u. gas was necessary due to .53 specific gravity or lower. The daily test burner data showed burner numbers ranging from 98-100 and the customer complaints came down to what is considered a minimum from past experience.

It is desired to point out that not only did the total complaints level off at a minimum but the leak complaints included in this total, showed a vast reduction. Leak complaints to the service department are of major importance because they must be handled on an emergency basis at the expense of the other service work. In this case the reduction of the CWG heating value from 530 B.t.u. down to 440 B.t.u. was made by cutting back on the oil used per MCF which was all added at the gasifier. With the sendout gas containing comparatively high proportions of this type of cold enriched water gas, the leak complaints remained far below the number previously received earlier in the season when lower percentages of 530 B.t.u. carburetted water gas were in the sendout. To the service men there was a marked reduction in odor normally encountered with the winter sendout gas which is definitely tied-in with the introduction of CWG.

This type of operation of the water gas sets continued for the month of November so that the improvement indicated by the low leak complaint record was definitely maintained over this period of a month.

Later it became necessary to increase the CWG B.t.u. to 470-492 B.t.u. which resulted in the leak complaints increasing to a somewhat higher level but still showing considerable improvement over the record obtained with the present 510-520 B.t.u. CWG operation.

Tests were made to determine the amount of 440 B.t.u., .69 specific gravity C.W.G. which could be mixed with 525 B.t.u., .426 specific gravity C.O.G. before the burner number fell below 92. The results showed that 23% of this low B.t.u. C.W.G. could be combined with 77% of the 525 B.t.u. C.O.G. for the 92 burner number. . . .

In order to take advantage of the possibilities indicated for the use of producer gas—butane, as a supplemental gas with coke oven gas, test burner data were obtained using 122 B.t.u., .91 specific gravity producer gas with butane vapor for cold enrichment. . . .

It was thought that by the time of this meeting we would have had sufficient cold weather to be able to report the field experience obtained on high specific gravity mixtures maintaining our heating value as near 530 B.t.u. as possible. This has not been the case and our report will have to wait on the weatherman.

O'Connor Gives Views on European Recovery

Private enterprise has a role to play in the rehabilitation of Europe, which is quite apart from anything which can be accomplished by this or other governments, it was reported recently by J. B. O'Connor, executive Vice President of Dresser Industries, Inc.

Back from several weeks on the Continent, during which he visited the industrial areas of Italy, France, Switzerland, Belgium and Germany, O'Connor found the pace of economic recovery is being most accelerated where it has been possible to work out a combination of American engineering "know how" with the labor and materials available within the countries concerned.

"Because foreign engineering and technology use the metric system instead of dealing with feet and inches, it has been found simpler," he states, "for American engineers to confine themselves to the job of overall creative engineering, leaving the general engineering to be done abroad by engineers regularly working with the metric system."

The extent to which Italy has recovered from the ravages of war is of great significance, in his opinion. He reports, for example, that in the Po Valley, where most manufacturing in Italy is done, there are developing tremendous possibilities in the use of methane or natural gas for industrial purposes. Sufficient drilling of wells has already been done to indicate that supplies of petroleum products are more than adequate to supply the needs of a substantial amount of industry in that area, industry which will then be independent of coal imports, today numbering thousands of tons.

Equally interesting, he believes, is the possibility of developing in Italy a great chemical industry. There is a great demand, he points out, for synthetic ammonia which is used in the manufacture of fertilizers. Synthetic gasoline, which can be manufactured from natural gas coming from fields under development in the Po Valley, would be equally valuable for industrial purposes.

J. B. O'Connor

Belgium, one European country to get off to a flying start following the end of the war, is today greatly in need of synthetic ammonia plants for the production of fertilizers, O'Connor discovered. Because Germany, which once used to be the source of such chemicals for the greater part of the Continent, is no longer able to meet the demand, he estimates that a score or more synthetic ammonia installations are needed, located all the way from southern Italy to northern France.

"In another activity Belgium is making great progress in experimental work in the underground gasification of coal," he said, "and is preparing to continue this work on a large scale."

In Germany, the No. 1 problem is re-employing the brains of the country—and in so doing getting manufacturers back on their feet. It is particularly important in this connection, he believes, to find employment once more for white collar experts—the technical talent—so needed in the development of engineering and chemical projects.

In the Ruhr, German synthetic gas-producing plants are all running in good shape.

Principles and Maintenance of Orifice Meters

By
Richard E. King
Central Electric & Gas Co.,
Lincoln, Nebraska

I AM STARTING my paper like all papers and all work should start, with the first thought being safety.

Upon entering a property where an orifice meter is to be tested, or a plate changed and inspected, my first thought is, and yours should be, is this the last meter I will ever test? If you will make a practice of saying these nine words before unlocking the meter house or entering the plant, I'm sure you will live to test another meter. Here are a few things that will immediately rush through your mind. Are all fires out, including the cigarette that is in your mouth. Do you have any cuts or bruises on your hands that mercury might attack. Is there plenty of ventilation in the meter room so that the toxic fumes of mercury and gases will be carried off?

Orifice meters and their Principles are not complicated. The Chaldeans used it before the time of Christ and it is estimated that today more than 400 thousand people earn their living manufacturing, operating, and maintaining Orifice meter equipment. The majority of these employees are connected with the gas and oil industry.

Orifice meter measurement may be divided into 3 parts:

1. **The meter run or tube**
2. **The Orifice plate**
3. **Recording instrument.**

The complete co-ordinated accuracy of all three must be maintained at all times or error in measurement will result. Failure to conform to the required standard of one part will defeat the accuracy of the other two.

In 1935 American Gas Association through its gas measurement committee published report No. 2. This report is more complete than the previous report No. 1, published in 1930, and it gives certain rules and curved sheets respecting the insulation of orifice meter runs. Report No. 2 specifications for Meter runs and orifice plates should be carefully studied in the designing and installing of orifice meter settings. It specifies a minimum length of pipe in the subdivision of the run in which accuracy may be expected in relation to the orifice to be used. It does not mean that these subdivisions of the meter run should be as short as these specifications. In fact most designers use longer lengths than these specified as an added safety factor. Except in the circumstances where the space limits the run to the minimum length.

The length of straight pipe upstream and downstream from the orifice should never be less than the minimum specified in Report No. 2.

This varies with the pipe size, ratio of the orifice to pipe diameters and physical condition surrounding the orifice such as elbows, valves, regulators, swedges, etc. The inside of the pipe should be smooth and free from unnecessary grooves and scars. The best way to obtain good pipe for orifice run is to go through a pile of your standard pipe picking out the pipe that will mic the closest to a standard pipe. At no time should pipe be turned to obtain smoothness on the inside. The internal diameter of the upstream section should be as near as possible to the published approximate diameter as shown in Table No. 1 of the report, and within the tolerance allowed in Table No. 2. The diameter, of the upstream only, is used in the calculation of the coefficient, but the downstream tube should not differ from the upstream tube by more than twice the tolerance as shown in Table No. 2.

When flange taps are used the tap holes should be carefully centered 15/16 from the face of the flange. This, with the use of a 1/16 gasket places the tap exactly 1 inch from the orifice plate. When pipe taps are used, couplings are welded onto the pipe, 2 ½ diameters upstream and 8 diameters downstream from the orifice plate. Proper tap holes are drilled through the pipe. Care should be taken to remove all the burrs and slightly round the edge of the tap hole inside the pipe.

A slip on type orifice flange series 30 are commonly used in the gas industry. If these flanges are installed properly there will be very little heat wild inside the pipe. Allowing sufficient time to allow each bead to cool thoroughly before applying the next bead. By using slip on flanges it is possible to install the end of the pipe to within ⅛ of an inch from the orifice plate, this being far better than the tolerance allowed. By using standard series 30 orifice flanges and the correct bolts, you will have no trouble in centering your orifice plate.

Straightening Vanes

The purpose of straightening vanes is to eliminate swirls, eddies, cross currents and turbulence in the flow of gas caused by fittings, regulators, swedges, etc. By the use of straightening vanes the length of upstream section of straight pipe can be materially shortened. The inside diameter of the tube should not be more than ¼ the inside diameter of the meter run. The over all length of the vane should be at least 10 times the diameter of the tube. These tubes should be welded together at all points and securely fastened in the meter run. There are several types of the vanes used, but regardless of the kind, the vanes must be installed straight inside the pipe or they defeat their purpose.

The Orifice Plate

The orifice plate, although sometimes the most neglected, is one of the most important component parts of orifice metering. Two types of plates are commonly used, the ⅛ inch is flat on both sides and is reversible, whereas the ¼ inch is beveled on the downstream side and is not reversible. The ⅛ inch plate has a tendency to warp, particularly in the larger sizes. The ¼ inch plate does not warp so easily, but care must be taken to install it in the meter run with the sharp edge upstream otherwise large errors will result. The frequency of orifice plate inspection will vary with operating conditions, but it should be often enough to assure that the upstream edge is sharp and that the plate is clean. It is also necessary that the area in the pipe close to the plate should be clean. The actual diameter of the orifice should be checked with the micrometer, the tolerances should be held to .003 inches. The upstream orifice edge should be sharp enough to shave the nail and not reflect a beam of light. Orifice plates should be car-

ried and stored in cardboard folders, and should be kept free from rust when not in use, by the use of petroleum jelly.

The Recording Instrument

The function of the meter is to record accurately the pressure at the upstream tap or the downstream tap, whichever is being used and the differential across the orifice plate under all conditions. How frequently the meter should be tested depends largely on the amount of foreign bodies in the gas, and carelessness of the chart changer. Orifice meters are most commonly tested monthly. The meters may not test out correctly for several reasons. The most common of these are the following:

1. **Chart changers carelessness**
2. **Friction in the stuffing box and linkage**
3. **Dirty mercury**
4. **Meter out of level**
5. **Incorrect Mercery level**
6. **Leak in manifold piping**
7. **Float improperly centered**
8. **Bent clock shaft.**

Before changing the calibration of the meter the above items should be carefully checked, and only then should the calibration be changed. The meter calibration is not likely to change if all items are corrected.

Procedure

The procedure of testing a meter is as follows:

1. Zero the meter, rotate the chart counter clock wise to show the zero on chart as found.

2. Replace chart with a test chart of the same range and make.

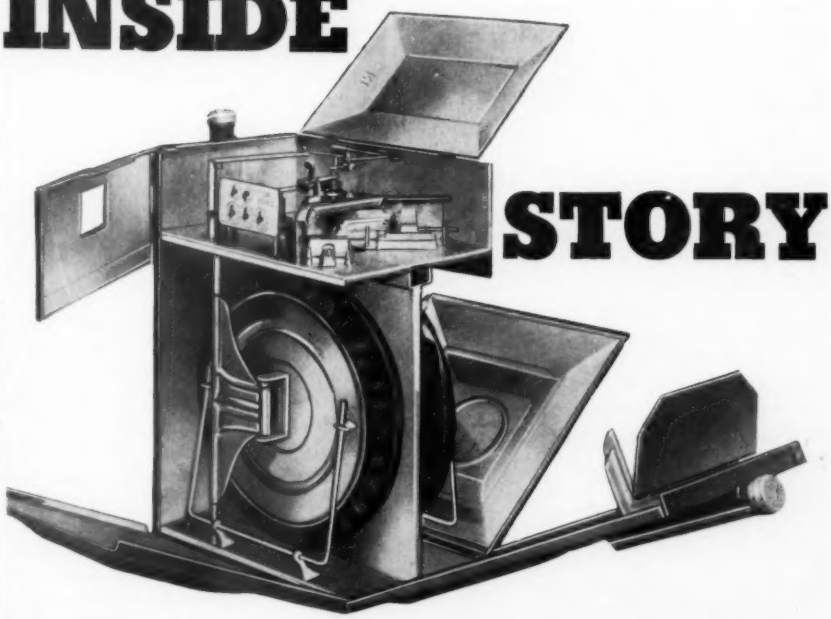
3. Close bypass valve, open the upstream and downstream manifold valves. Close valve on inlet and outlet of meter. This shut-in test will show any leaks in meter manifold, if there is a leak, by closing one manifold valve, and watching your differential pen it will tell you which side the leak is in. If the differential pen moves above zero, the leak is in the low side.

4. Next the differential mechanism is checked. All gas is then drained from the meter through the by-pass valve, the low side of the meter being open to the atmosphere, the downstream manifold valve closed. A 50" manometer using water is attached to the high pressure side of the meter, the valve on the upstream leg being cracked slightly allowing gas to pass into upstream chamber and also out the by-pass valve. By now closing the by-pass slightly, one can create any differential needed in testing a meter. A meter should be run at several points up the scale and several points down the scale with the up-scale reading being on the 2.0—4.0—8.0—16.0—32.0, etc. The downscale reading being wherever the differential might stop by one move of the by-pass valve. Comparing the two readings will show whether there is friction in the meter due to the stuffing box, float assembly, check valve, or too much pen tension on the chart.

5. If the meter checks, the manometer can be removed, the downstream manifold valve opened, the meter closed in and you are ready to run your high and low limits, checking the amount of mercury in the meter. This should run not less than .520 up .05 down on a 50 inch meter. While running these limits the differential pen arm can be checked for arc.

6. The pressure spring is checked with a good test gauge that has recently been tested with a dead weight tester. A dead weight tester itself should never be used to test an orifice meter without first compensating the weight of the oil in the tester. The spring should be checked at several points up to the

INSIDE STORY



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★ Flanged cases—for sweated seams & tight corners; extra strong
★ Forged brass side pipes—no porosity, no corrosion, no solder leaks
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SEND FOR BIG FREE CATALOG

operating pressure. This will prove that there are no binds or drags in the pressure assembly or pen arm.

7. After the test is completed the meter is repressured and the zero again checked. The meter is then put back into service, the tester filling in the portion of chart that is missed because of testing. A complete meter report should be filled out to the slightest detail and sent to the office immediately.

8. If the meter does not check, and it isn't due to the friction in the pen arm or linkage, you are sure that the stuffing box must be removed and be regreased. As a rule there are zerk fittings or pressure type screws for this purpose attached to all meters. I personally disagree with the use of this type of a contraption to grease a differential shaft. The shaft should be removed from the meter, all grease being washed from same with a white gas or carbon tetrachloride. All parts being dried thoroughly with a soft white cloth, grease the shafts before installing in the meter. It is very easy to overpack a greased type shaft, after packing always inspect for binds. This can be done by lifting the differential pen when it is loose from the float end up to 50 inches; the weight of the pen arm and point should be sufficient to return the pen to zero. The type of grease used in repacking these shafts varies from one company to another. The manufacturers of all meters furnish a good lubricant for their meters. Other companies use alemite water pump grease. This seems to work very well. I personally recommend Dor-Corning plug cock lubricant No. 797-C24. This comes in a tube like toothpaste making it very easy to use and works well for natural gas and the temperatures we have in Nebraska and So. Dakota. Regardless of the kind of grease used, it will not last indefinitely so care should be taken to prevent stuffing box leakage, shafts from freezing in place, and from becoming dry and scoring.

9. When the meter is opened to remove the differential shaft, we see that the mercury has a considerable amount of foreign bodies floating around on top. This means it is necessary to either take a clean cloth with white gas or carbon tetrachloride and clean the surface of the mercury, and the float and the meter chamber wall. I consider this method only as a temporary method at its best. The mercury should be drained completely, the meter thoroughly cleaned in both the low and high pressure chambers. When the meter has been cleaned and dried, clean mercury should be installed. The old mercury can be taken to the shop and be cleaned and ready to be used in the next meter. There are several devices commonly used to recondition mercury. One is the refinery and supplies apparatus which filters and washes the mercury through acid and rinsing it with water all in one operation. This apparatus is very useful when the mercury has been mixed with oils or greases. More commonly used in the dry natural gas industry is a vacuum purifier, which consists merely of a bottle that a high vacuum can be drawn on by the use of a machine that fits onto an ordinary water faucet. With this instrument and a funnel with a tightly woven porous sleeve, mercury can be purified from normal line rust, dust, and accumulation of dirt. This equipment can be purchased from any good laboratory supply house. Remember at all times that mercury, even at room temperature gives off a poisonous gas.

The meter should be installed in a sheltered place, preferably a house, for the following reasons:

1. The meter should not be in the direct rays of the sun as a change in temperature causes a change in zero of the meter.

2. Chart changing is difficult in rain and wind.

3. The meter may be tampered with if not housed.

The meter should be installed on leveling saddles provided for this purpose. All meter piping should be so installed so that any oil or mercury would drain back to the meter run taps. The meter run, itself, should be so installed that the run cannot sag while the orifice plate is being changed. There are commercial type brackets that may be used for both leveling and holding the run in place.

Chart Changing

Careless chart changing has caused many companies to lose large amounts of money. A careless and incompetent chart changer can defeat all efforts made in maintaining the accuracy of the meter run, plate and meter. The chart is the record of gas flow through the run and this record can be made erroneous by the following: Improper zero, failure to open by-pass lines enough or failure to give meters time to oscillate at zero and come to the true zero. Carelessness in striking pen arms when removing or putting on the chart may knock them out of adjustment and cause errors.

As much care should be taken in the selection of a chart-changer as in the selection of a meter man. Far too many companies send the first man who comes along to change their charts. Chart-changers should all have the working knowledge of the equipment that they are expected to change the charts on.

Presented at the Mid-West Gas Conference and School, Iowa State College, Sept. 13-14, 1948.

CRUSE-KEMPER COMPANY
AMBLER, PENNA.
GAS HOLDERS
Low Pressure High Pressure Inspection
Purifiers Tanks Flues
Over 40 Years of Sound
Steel Plate Construction

New England Gas Association Holds One-day Meeting of Operating Division

WITH an attendance that broke all previous records for this Division, an all-day session of operating men of New England Gas Association was held on January 13th at Hotel Statler, Boston.

The morning session opened with a sound, color motion picture made under the direction of Donald Whitcomb, distribution engineer of Providence Gas Company. It showed much of the modern equipment for trenching, pipe laying and back-filling which has replaced older methods and brought about considerable reduction in size of crews, more speed and consequent lower labor costs. A highlight of new equipment is the car and truck radio communication with headquarters, which enables immediate despatch of crews and equipment to meet emergency calls.

William Hendricks, General Superintendent of Lewiston Gas Light Co., described operations in connection with the installation of a rebuilt 10'6" water gas set and other equipment purchased from Washington Gas Light Company which became available due to the Washington change-over to Natural Gas.

Some new material was also bought and a new generator house erected of cement block construction with steel columns and roof girders, steel doors, frames and sash.

Silicon carbide refractories extending six feet above the grate level are used in the rebuilt generator. The engineering and labor was practically all done by their forces at the plant which was in operation 11 months after ground was broken. Description will appear in a later issue of the *Journal*.

Catalytic Cracking An extemporaneous address by Edward G. Boyer, Manager of the Gas Department of Philadelphia Electric Company followed. Mr. Boyer feels convinced that most any of the hydrocarbons can be cracked by catalytic processes according to research and such processes have been carried on at low labor cost. He spoke of a cracking unit for 5 million cu. ft. of gas a day which would require as little space as 18 x 22 feet, not including storage.

He described briefly the work now being carried on at Chester, Pa., to be completed some time this spring.

In using natural gas, he stated that through the use of a catalytic unit as a supplement, capacity could be increased four times.

Such units, he believed, would be of great service to manufactured gas plants of high or normal Btu as an adjunct to increase capacity. Units can be operated with air or steam.

Following the luncheon, an address on Employee and Public Relations prepared by O. Van Rye was presented by R. J. Lyman, Personnel Assistant of New England Power Service Company.

In his summary he stated that "modern management requires the qualifications, attributes and traits essential to optimum administration of human relations in industry.

"To make it work there must be a recognition of the fundamental necessity of maintaining two-way communication between employees and management. The destructive thinking must be replaced with constructive understanding. There must be constant efforts to inform employees about management policies and objectives, since their future and that of their families is bound up with the future of the company. The ever present danger of disruptive and dangerous rumor must be eliminated by informing employees of changes before they are made or at least before they read about it in the newspaper."

Plant Operation in Relation to Utilization by Warren E. Churchill, Chief Chemist, Boston Consolidated Gas Company, was next on the program. An extended abstract of this paper is published in this issue of the *Journal* on page 17.

660 Btu Gas at Framingham was the subject of an impromptu address by R. J. Rutherford, Vice President, Worcester Gas Light Company. He spoke in entertaining manner on how difficulties were overcome when the changeover to 660 Btu gas was accomplished at the Framingham Division some years ago.

Operating Division officers were elected for the coming year as follows:

Chairman—George C. Pearl, Conn. Lt. & Pr. Co., Norwalk.

Vice Chairman—E. F. Kennedy, Malden & Melrose Gas Light Co.

Secretary-Treasurer — Donald Whitcomb, Providence.

Directors: E. R. Clark, Lynn Gas & Elec. Co.; R. B. Barger, The Hartford Gas Company; H. C. Jones, New England Power Service Co.; E. G. Rhodes, New Britain Gas Light Co.; C. R. Prichard, Jr., Gas Service, Inc., Nashua; C. F. Machen, Boston Consolidated Gas Co.

Coroaire Appoints Leonard Assistant Sales Mgr.

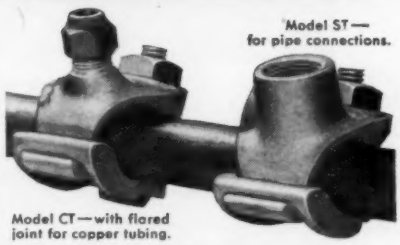
A. W. Conley, president of the Coraaire Heater Corporation and its subsidiary, Hot Boy Incorporated, has recently announced the promotion of T. G. Leonard to the position of assistant sales manager.

Mr. Leonard has been associated with Coroaire Heater Corporation since his release from the A.A.F. three years ago, in the sales and advertising department.

Quick easy way

TO MAKE GAS AND WATER CONNECTIONS

FOR REFRIGERATORS, LAUNDRIES, WATER-HEATERS, ETC.



SKINNER-SEAL SADDLE TEE—for making gas and water connections. No pipe cutting or threading. Quick. Easy. Cuts costs. For gas refrigerators, home laundries, heaters, etc. Write for circular.

Approved by Underwriters' Laboratories, Inc.

M. B. SKINNER CO.
SOUTH BEND, 21, IND., U. S. A.

New Equipment for Clearing Drips and Services

By
W. L. Heuser
General Foreman, Gas Department
Public Service Electric & Gas Co.
Newark, N. J.

PUBLIC SERVICE Electric & Gas Company had been using for the past four or five years a vacuum tank and steam in connection with the removal of gummy deposits in services and drips. The equipment was designed by making a few free hand sketches for the shop mechanic. An old refrigerator compressor, or whatever type small compressor was obtainable, made up the vacuum pump. This equipment, properly assembled and operated with care, did a remarkable job. A trailer type, portable, home-made, kerosene fired steam boiler used in conjunction with the vacuum tank, while perfectly satisfactory from the standpoint of operation, proved cumbersome when trying to park the truck and trailer in this busy city.

Our General Superintendent, H. Whitcomb Nicolson, suggested that we in the Distribution Department, proceed to develop this home-made outfit into a compact unit. Eliminating all the faults of the previous equipment, we now feel we have a piece of equipment worth telling about.

The main tank is divided into four separate compartments with the following capacities and purposes: 500 gallon main collecting section, 175 gallon drip oil section, 45 gallon surplus boiler feed water section and a 175 gallon water section for pump operation. The vacuum pump is Whittington-Carver Centrifugal No. 2½ type E.F.H. Unit #6775-1. The pump is driven by a Wisconsin 7½ H.P. Model A.C.H. size 3½ x 4, air cooled gasoline engine. The steam boiler is a McKee 4 H.P. Type "C" made by the Eclipse Fuel Engineering Co., Rockford, Illinois. It is fired by a kerosene pressure burner, Model 12 T, manufactured by Aeroil Products, West New York, N. J.

So that the operator would have little excuse to be in the street, every effort was made to carry the operating mechanism to a convenient location in a compartment on the curb side of the truck. By these several conveniently located gauges, the operator can tell the amount of liquid in his tanks, steam pressure, temperature of drip oil, pressure on steam boiler fuel tank, vacuum in the collection tank and drip oil tank.

The piping and valve layout permits the operator to:

1. Create a vacuum in either the 500 gallon compartment or the 175 gallon compartment.
2. Permit steam to agitate and heat the drip oil.
3. Build a pressure of steam in the drip oil compartment so the drip oil may be forced into a drip, service or valve.
4. Allow steam to enter the collection tank through the suction line, thereby cleaning any gummy substance in this line or on the sight glass.
5. Allow either, or a mixture of hot drip oil and steam to enter the drip, service or valve.
6. Drain either the 175 gallon or 500 gallon tank.
7. Turn off burner under steam boiler.

All this plus operating his vacuum pump can be done by the operator without stepping from his position at the side of the truck.

The vacuum pump will pull a 28 inch vacuum on the 500 gallon compartment in 12 minutes. With 28 inches of vacuum, the 500 gallon tank will pick up 55 gallons of water in 55 seconds. From a cold start, the McKee boiler will blow the fifteen pound safety valve in just 15 minutes.

The truck is equipped with a CO_2 fire extinguisher, several lengths of 1½" suction hose, drip rods and an assortment of fittings assembled for ease in making the connection to the service, drip or valve. A valve key, drip key, U-gauge and the necessary complement of small tools, a bucket, a gallon of deodorant and a supply of lubricating oil complete the list of equipment that goes with the truck.

With the use of this type equipment, we have been able to clear 85% of our service stoppages. We have found our failures come on services

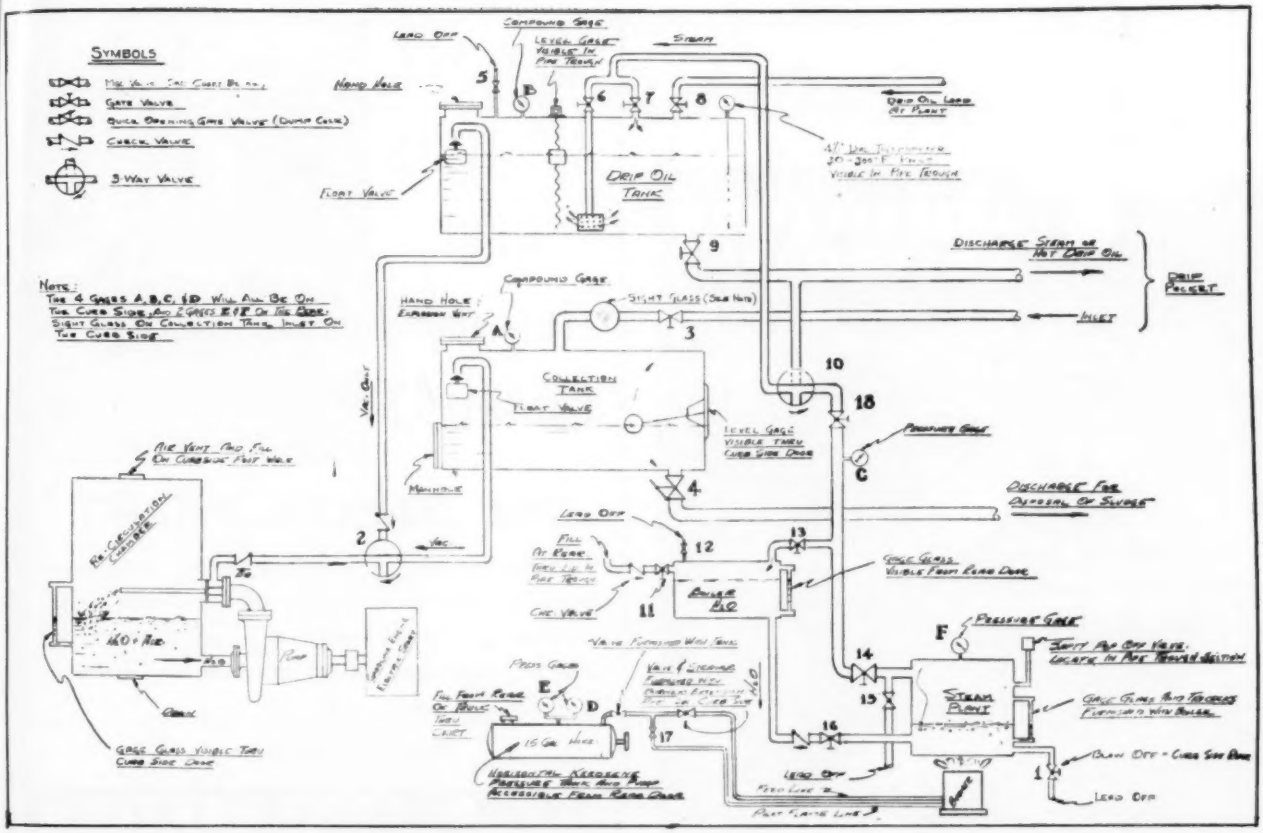
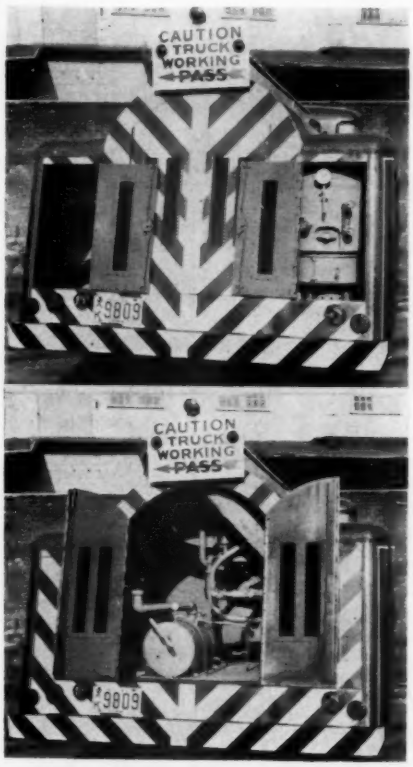
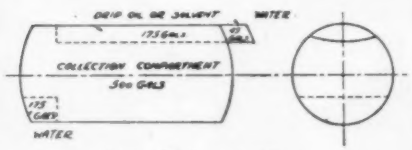


DIAGRAM GIVES FLOW SHEET OF OPERATION

Numbered items are as follows:
1, 13, 16:—1 inch gate valves
2 and 10:—2 inch 3 way valves
3, 6, 7, 8, 14, 18:—1½ inch gate valves
4:—3 inch lubricated cock
5, 12, 15:—½ inch brass cock
9:—2 inch gate valve
11:—¾ inch gate valve
17:—⅛ inch needle valve



Section doors at rear show access to equipment. Two side views show accessibility.



Main Tank, capacity.

that have a ¾" tap in the main or the very old 1" service installations. Clearing of drips has been very close to 100%, the only exceptions were a few very old installations where a line drip was set off to the side of the main and connected to it by means of a tap connection on the bottom of the main. As for valves, in every single case we have been able to free sticky, gummy valves and return them to perfect operating condition.

It is to be remembered that the equipment is dependent on its operator for successful operation. A shot of steam, a shot of drip oil and a pull with tha vacuum tank does not clear a service. But these with a little common sense and patience will do the job at a considerable saving and a minimum of annoyance to the customer.

The Chassis is a Dodge, Cab Over Engine, Model B-I-J-M 131. This unit was developed by myself in collaboration with Mr. L. D. Meeker, of Smith Meeker Engineering Co., of New York City, eastern representatives of Whittington Pump and Engineering Co., of Indianapolis, Indiana, who built the unit.

Statement By The Manufacturer

The Whittington Hydro-Scavenger Drip Truck, originally designed for the manufactured gas industry, is a fast, economical and effective method of removing condensate from gas main drips. Special adaptations of this basic truck design can and are being developed.

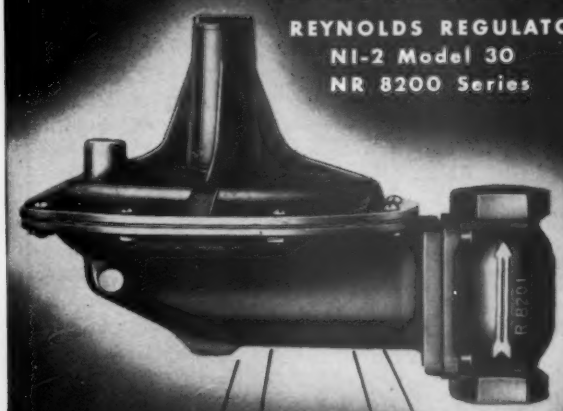
Public Service Electric & Gas Company of Newark, New Jersey, has recently placed one such Whittington system in service. Its primary function will be clearing stoppages in gas service leads, especially

(Continued on page 46)

4 INSTALLATION POSITIONS

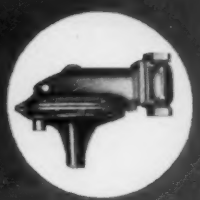
...for easy connections
Spring Top operates
pointing either up or down

REYNOLDS REGULATOR
NI-2 Model 30
NR 8200 Series



Vertical Position with down flow

Vertical Position with up flow



Inverted Position for use where accumulation of water is problem

Horizontal Position with flow left to right or by changing setting 180° with flow right to left

1. This regulator is available with any type seal previously made by Reynolds.
2. Quickly installed in existing house piping.
3. May be installed in any position on a 90° setting.
4. Orifice can be changed at any time.
5. To inspect orifice or valve pocket, only an Allen wrench is needed.

Reynolds

GAS REGULATOR CO.
ANDERSON · INDIANA · U. S. A.

WHY PAY SIX TIMES MORE for your BREAKING?

THE MIGHTY MIDGET

A utility machine with merit, power, speed and economy. Increases output of your compressor. Cuts concrete and tamps backfill at a rapid pace. Cuts cost to a minimum. Entirely air powered. Cuts concrete the easy way!

Write for information.

R. P. B. CORPORATION
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SLASH PIPE INSTALLATION COSTS

SAVINGS UP TO 80% - 85% NOT UNCOMMON

HYDRAUGER operation SAVES TIME and lots of it! With man-hour costs HIGH, it is wise ECONOMY to equip your crews with TIME SLASHING HYDRAUGERS.

The reason for HYDRAUGER ECONOMY is very simple. It bores a clean, open hole, horizontally through all formations; does it without paralyzing traffic, wrecking pavement, lawns, gardens, etc.

Write for Catalog No. 8 TODAY!

HYDRAUGER CORP., Ltd.
681 Market Street
San Francisco 5, California

The powerful air-driven HYDRAUGER machines (3.2 and 5.2 horsepower) bore and ream any size open hole from 2 in. through 14½ in. The Hydrauger bore is straight and ready for easy installation. Bores of over 200 feet have been made in one operation; makes 8½ in. hole at 40 feet per hour in ordinary soil conditions; 2½ in. hole through rotten rock at 50 feet per hour.

OPEN HOLE

*Hydrauger

* Reg. U. S. Pat. Office

HY-13a

EARTH BORING TOOL

Recent Court Decisions
Affecting Gas Utilities

1948 Legal Can and Can't

By
Leo T. Parker
Attorney at Law
Cincinnati, Ohio

DURING the past few months the higher courts have rendered several unusually important and outstanding decisions particularly interesting to gas company managers, executives, and other employes who desire to minimize liability under sales agreements and contracts for accessories, equipment, and the like.

In order to simplify these outstanding and complicated legal decisions, and at the same time include a relatively large number of decisions in a few words, I have classified, for convenience of readers the various cases under headings of: *thing you can do,* and *things you can't do.* Readers will do well to file the hereinafter citations for future reference and use to win unavoidable law suits.

Things You Can Do

YOU CAN without any expense stop unfair trade practices by competitors by notifying the Federal Trade Commission who will file the necessary suit.

For illustration, in Consumers Home Equipment Company v. Federal Trade Commission, 164 Fed. (2d) 972, the Federal Trade Commission sued a company and ordered it to cease its sales plan which was said to employ false representations and fraudulent schemes.

The testimony showed that the company's salesman exhibited to prospective purchasers samples of household and kitchen accessories *different from those* actually delivered. When an objection was made by a purchaser to the quality of the merchandise the company attempted to force the purchasers to accept same by threatening suit or refusing to return the down-payments.

The higher court followed the opinion rendered by the Federal Trade Commission and ordered the company to stop these unfair practices, and indicated that if the company or its officials continue these practices they will be penalized for contempt of court.

YOU CAN recover possession of equipment on which you hold a valid lien, although such equipment is in possession of an innocent buyer. See Manning v Miller, 206 S. W. (2d) 165, where an innocent person purchased in Texas merchandise mortgaged in another state. The higher court awarded possession of the merchandise to the holder of the mortgage, and the innocent purchaser suffered loss of the money he paid for the merchandise.

Also, see Trinity v. Price, 205 S. W. (2d) 62. Here it was shown that a purchaser of merchandise from a seller named Price did not know that it belonged to a finance company. Later he contended that since Price had possession of the merchandise he could legally sell it. The higher court refused to agree with this contention, saying:

"The mere possession of property of another does not give the possessor the right to deal with such property as he sees fit."

YOU CAN use any trade-mark or tradename which does not deceive the public.

For example, in S. Buchsbaum v. Federal Trade Commission, 160 Fed. (2d) 121, the Federal Trade Commission sued a company which sold various articles made from a plasticized, pliable, and resinous material resembling glass. The Commission alleged that this company was guilty of unfair trade practices in using the word "glass" when selling the articles under the name "Elasti-Glass."

The higher court reversed the Commission and held that the company could legally use the name "Elasti-Glass" in its advertisements and on its products.

YOU CAN sue and recover from a purchaser the full value of merchandise you sell at low price through an error.

In National House v. New York, 49 Atl. (2d) 577, it was shown that a stenographer made an error while extending the figures into the final column, and the items aggregated $35,000 instead of their true value $48,000.

In subsequent litigation the higher court held that the purchaser must pay $48,000 for the merchandise. Also, see Simpson Company Geschke, 79 A. 427, where a seller agreed to furnish certain materials for $2,650. Later *by letter* he verified the agreement but by mistake he specified $1,650, instead of $2,650. Without discovering the error the seller accepted $1,650, and gave the purchaser a receipt "in full."

Later when the seller discovered his error he sued the purchaser and the higher court allowed him to recover $1,000.

YOU CAN be held liable for punitive damages, in addition to ordinary damages, if you defraud a purchaser.

For instance, in Marquis v. Pettyjohn, 212 S. W. (2d) 100, it was shown that a seller showed a prospective buyer one item and delivered a different item.

The higher court awarded the purchaser ordinary damages in the sum of $400, and punitive damages in the sum of $500. This court said:

"Fraudulent representations constitute sufficient grounds for the recovery of . . . punitive damages . . ."

YOU CAN avoid *all* liability on a sale contract by inserting either a typewritten or penwritten clause.

For example, in Mortin v. Southern Company, 130 S. W. (2d) 1065, it was shown that a seller inserted in a sale contract a penwritten clause, as follows: "The Southern Company shall not be responsible for damages

in use of this machine. . . ."

The purchaser sued the seller and proved that the machine would not perform as guaranteed in the body of the contract.

The higher court refused to award any damages, and said that the seller's penwritten guarantee limitation clause had priority over his printed guarantee clause.

YOU CAN repossess merchandise or equipment without giving the purchaser *any* notice if the purchaser *defaults* in making a *single* installment payment.

See Geroy v. Upper, 187 Pac. (2d) 662. Here the testimony showed that a purchaser signed a contract which contained a clause which gave the seller the right to take possession of the merchandise *without demand or notice,* if the purchaser defaulted in making any monthly payment. The purchaser defaulted in making a payment and the higher court held:

"The seller had the option either to treat the sale as absolute and sue to recover the remainder of the sale price or to regard it as canceled and take possession of the property."

Also, this court held that the seller was within his legal rights in repossessing the merchandise without giving the purchaser any notice. The court said:

"The contract specifically permitted him to do so without demand or notice to the buyer, and, therefore, no demand or notice was necessary."

YOU CAN hold a salesman *personally* liable on a sale contract made for his employer, if the salesman neglects to inform you that he represents the employer. See Riss, 198 S. W. (2d) 347.

YOU CAN hold *any* single partner liable for the full partnership debt. See Hix v. Bilingsley, 195 S. W. (2d) 219. This court held that any one financially responsible partner is liable for payment of all the debts owed by the partnership, although a partner who had invested no money in the enterprise secretly incurred the liability and debts.

YOU CAN recover damages based on your anticipated losses if a seller breaches a sale contract.

In Su Company, 175 Pac. (2d) 684, the higher court held a seller, who breaches his contract, liable in damages to the purchaser for $13,678. This amount was the difference between the contract price and the price the purchaser was compelled to pay to obtain the same merchandise from other sources.

YOU CAN without liability duplicate a copyright if its owner fails to prove that you copied it.

In MacDonald v. DuMaurier, 75 Fed. Supp, 653, 655, the Federal Court held that there can be no infringement of a copyright, although the words are similar, unless the testimony showed that the one who was sued for infringement actually read and copied the copyrighted work.

YOU CAN recover heavy damages from a manufacturer who breaches his contract making you a distributor of his merchandise.

In Springer v. O'Brien, 190 Pac. (2d) 341, the testimony showed facts, as follows: A manufacturer appointed a sole distributor of its products in a specified territory for the term of two years. As consideration for the exclusive franchise or agency the distributor paid the manufacturer $4,000, and immediately upon signing of the contract the distributor undertook to sell the products, established a warehouse, traveled throughout the territory, engaged local dealers, solicited and obtained orders, but the manufacturer refused to furnish or ship the accessories ordered out by the distributor. The latter sued the manufacturer for $20,000 damages. The lower court held in favor of the distributor and the higher court approved the verdict.

YOU CAN avoid all liability on verbal promises made by your employes by inserting a clause in the written contract.

See Boro Hall Corporation v. General Corporation, 164 Fed. (2d) 770. Here it was shown that a contract contained this clause: There are "no oral or other agreements or understandings," between the contracting parties.

In subsequent litigation the higher court held that this clause prevented *both* contracting parties from introducing testimony of verbal conversations, promises and guarantees.

Things You Can't Do

YOU CAN'T avoid liability for failure to complete a sale contract on the grounds that it was "impossible for you to do so."

In Rawjee v. Hatton, 180 Pac. (2d) 382, it was shown that a seller failed to make delivery of merchandise to a purchaser and proved that it was *impossible* for him to do so because a fire destroyed his warehouses in which the merchandise was stored.

The higher court refused to excuse the seller and held the purchaser entitled to $7,200 damages.

YOU CAN'T recover money from a seller whom you paid an amount

Consult us-
FOR
EXPERIENCE IN SOLVING
YOUR PROBLEMS OF
GAS STORAGE AND
PROCESSING EQUIPMENT
Consulting with us does not obligate you--but we do want to acquaint you with STAMANCO'S record of past performance--a record that has always been outstanding, from the dawn of the Gas Industry in America right up to the present. It's a record that will guide you to the most dependable equipment for YOUR needs.
Shown at the left is a STAMANCO Gas Holder recently installed in Florida. All-Welded Panel construction; capacity 150,000 cu. ft.
STAMANCO
WET SEAL
GAS HOLDERS
The STACEY MANUFACTURING Co.
SINCE 1851
CINCINNATI 16, OHIO
GAS HOLDERS • HI-PRESSURE TANKS • PURIFIER BOXES
ENGINEERS • FABRICATORS • CONSTRUCTORS
An Independent Organization Not Affiliated With Any Other Builders of Gas Holders

greater than a price specified in a contract.

For illustration, in Pure v. Tucker, 164 Fed. (2d) 945, the testimony showed that a buyer and seller made a *written* sale contract with prices for the merchandise clearly listed in the contract.

In subsequent suit the buyer alleged and proved that the seller had charged him *more* for certain products than the price specified in the contract. The purchaser asked the court to award him $10,188, the overcharge. However, the higher court held that since the purchaser had voluntarily paid the seller for products sold to him under the contract, he could not recover an overcharge.

YOU CAN'T avoid a damaged liability if you breach a sale contract.

In Light Company, Inc., v. Foster, 33 So. (2d) 540, it was shown that a seller signed a contract to deliver certain equipment to the purchaser. The seller failed to deliver the merchandise.

In subsequent suit the higher court held the seller liable for $2,974 damages, because the purchaser proved that he could have resold the merchandise and earned a profit of $2,974.

YOU CAN'T avoid liability based on a letter you did not receive, if the sender proves that he properly addressed and mailed the letter. See Adams v. Plaza, 43 S. E. (2d) 47.

The addressor proved that he had mailed a letter to one Roberts. The higher court held that a properly addressed and mailed letter is "received" by the addressee, notwithstanding the latter testifies that he did not receive it.

YOU CAN'T avoid this legal rule: Where one of two innocent parties must suffer a loss, it must be borne by him whose act or omission made the loss possible. See Nichols v. Bogda, 77 N. E. (2d) 905.

Also, see Pool v. George, 209 S. W. (2) 55. This court held that when a seller delivers equipment and *also* papers indicating a clear title to the equipment in the purchaser, the seller cannot recover possession of the equipment from one who had purchased it in good fatih from the purchaser. The court said:

"The law applies the maxim that, where one of two innocent persons must suffer, the loss must fall upon the one by whose act it was occasioned."

Catalytic Cracking Plant Installed at Reading Pa.

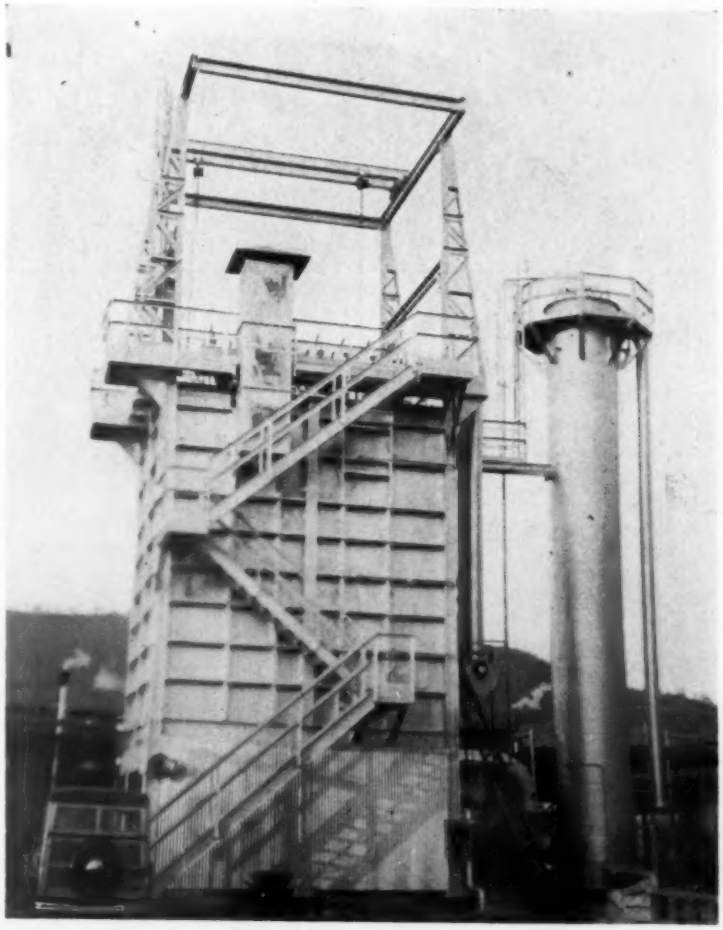


Figure 1: This view of cracking furnace shows the overhead derrick which is used for the installation and removal of tubes. The washer-cooler is seen at the right.

ON November 25, 1948, a new peak load plant for fuel gas production was put into operation by the Consumers Gas Company, Reading, Pennsylvania. This installation, the second catalytic cracking plant to be installed in the United States, at present employs butane as a feedstock and has a capacity of 5,000,000 cubic feet per day of coke oven gas substitute.

Rated capacity has been met and the exact interchangeability specifications of the gas. It was put into operation on the day originally scheduled and the Reading personnel were able to conduct operations entirely by themselves within a week's period.

The plant was designed and built by Surface Combustion Corporation, Toledo, Ohio for United Gas Improvement Company, parent organization of the Consumers Gas Company. The Reading installation is similar to that built for peak load shaving at the Riverhead Station of the Long Island Lighting Company,* in January 1948. The end product of the process is different being a coke oven gas substitute rather than the water gas substitute produced at Long Island.

While the Long Island plant consisted of three furnaces, each containing 8 tubes of 6 inches inside diameter, the Reading installation consists of 32 tubes, 8 inches inside diameter, in a single furnace. The considerably increased total cross sectional area of the tubes results in

* *See July, 1948, issue of American Gas Journal, page 11.*

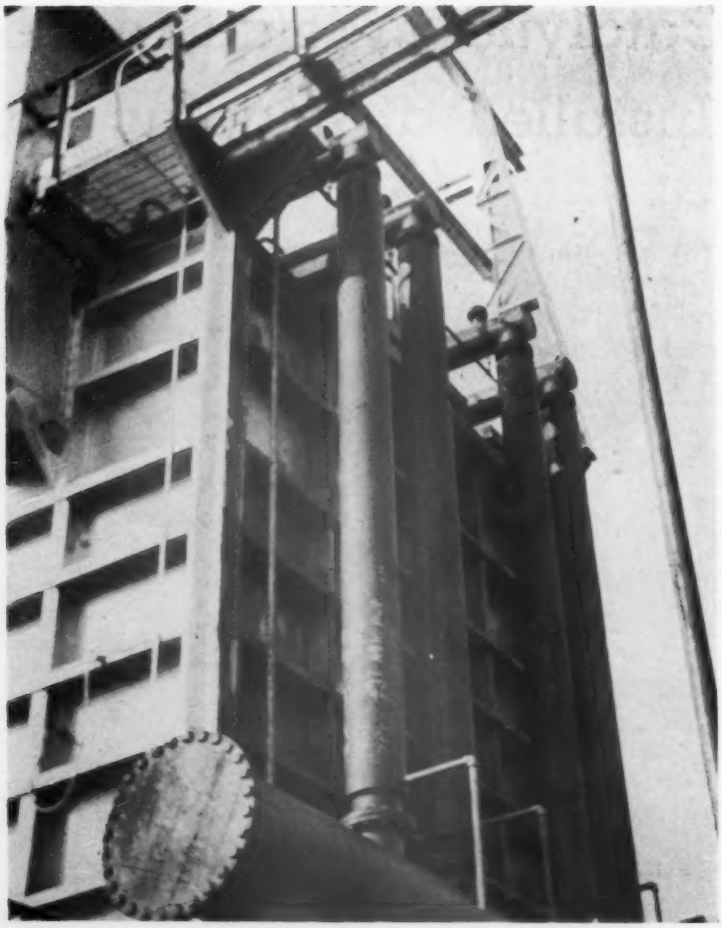


Figure 2: In this close-up of the cracking furnace, the water-jacketed risers from the collector mains to the 30 inch hydraulic main are clearly shown.

an increased capacity such that the Reading plant can easily produce 5,000,000 cubic feet of coke oven gas substitute. This gas has a heating value of 520 Btu/cubic foot and a specific gravity of 0.52. It is completely interchangeable with the standard coke oven gas regularly supplied by Consumers Gas to its customers, without adjustment being necessary at any point in the mains or at the appliances. The process raw materials are air and steam in addition to the butane feedstock. No. 3 fuel oil is used for heating the catalytic cracking furnaces which operate at 1800°F.

The Reading plant is so designed that a wide range of alternative feedstocks may be employed to take advantage of market conditions. These feedstocks, in addition to the butane now used, include propane, natural gas, casing head gasoline, straight run gasoline and ordinary cracked gasoline. When gasoline is used as a feedstock, a still is utilized which automatically distills the gasoline into three fractions, one of which is cracked in the reaction tubes; the second is used for enriching purposes while the third and heaviest fraction is used as fuel for the reaction tube furnace.

A feature of this plant which is especially timely is that the effluent water from the gas washer is free from contamination, including sulphur, phenols, and oils. In fact, this effluent water was shown by chemical analysis to be cleaner than that of the Schuylkill River into which it is discharged. Since approximately 20,000 gallons of water are discharged per hour, possible contaminants in such water would be a matter for considerable concern in view of the current anti-stream pollution activities on the part of state conservation commissions. The only processing required to make the effluent water perfectly satisfactory for river wild life is to aerate it since the oxygen is scrubbed out of the water during the gas washing process. This aeration is readily accomplished by permitting the effluent water to flow through a half-tiled open drainage ditch from the plant to the river one-half mile away. Thus, the purity of the raw materials and the controls engineered into the "Surface" catalytic cracking process obviate the need for an effluent water processing plant.

A plant practically identical to the Reading installation is going into operation at the Harrisburg, Pennsylvania plant of the United Gas Improvement Company. A third identical plant is scheduled to be started up at the Allentown U.G.I. property on September 1, 1949.

Present at the lighting up of the plant were Allyn C. Taylor, President, and William S. Bunnell, Operating Manager of Consumers Gas Company; Dr. E. H. Smoker of United Gas Improvement Company; as well as Dr. C. G. Milbourne, W. E. Spengler and R. F. Weyburne of the Gas Production Division, Surface Combustion Corporation.

Coleman Co. Establishes Calif. Branch Offices

The Coleman Co. Inc., of Wichita, Kansas, has revealed their decision that the interests of utility and dealer accounts could best be served by direct distribution in the California areas formerly handled by General Electric Supply Co.

The Wichita firm also announced the opening of a branch house in San Francisco to serve 37 counties and parts of four others in central and northern California. The balance of the state will be served by the newly established Los Angeles branch house, with F. R. Stephens as branch manager. Lawrence Ingram, former regional sales manager in that area, has been named manager of the San Francisco office.

THE GOODMAN STOPPER

Now has the "Z" handle for easy manipulation. When locked in place it holds. Stopper cannot slip. Gas cannot pass. Adjusted in 30 seconds.

Ask for circulars on this and other distribution equipment.

Nearly a half century of service to the Gas Industry.

The Reliable Shut-Off for Street Mains

Safety Gas Main Stopper Co.
523 Atlantic Avenue, Brooklyn, New York

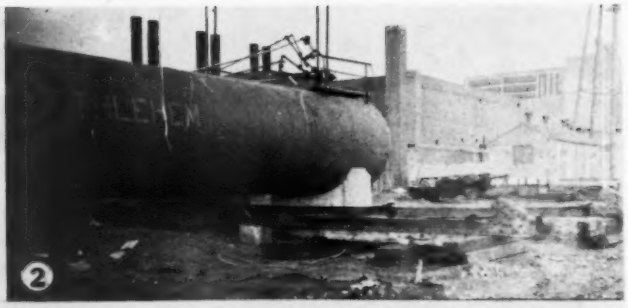
It's "SALES HO" for the Servel GAS Refrigerator

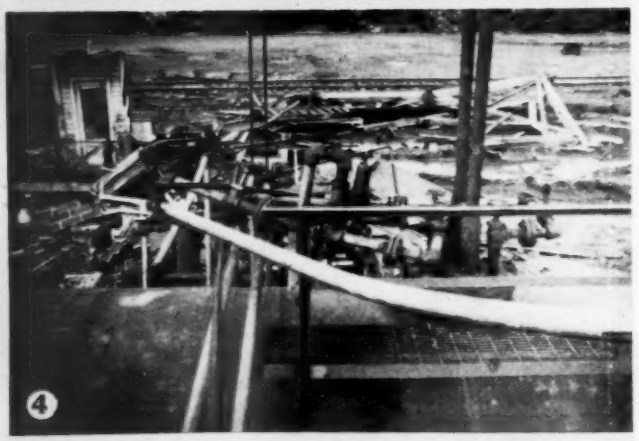
Cash awards plus credits toward Victory Vacation Flight to Mexico City await the winners of the Flame of Freedom's Second Quarterly Campaign

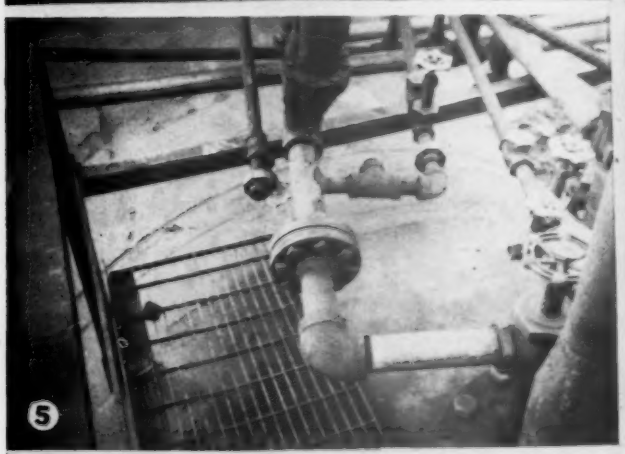
By this time, your "Sales Ho" Campaign is doubtless well under way. You've found that it has been a great help in getting your all-important 1949 selling program on the Gas Refrigerator off to a good start. The buyers' market is making its presence increasingly felt with each passing day. And during these next twelve months, it's going to take selling —and plenty of it—to move merchandise.

To offer salesmen continuous selling incentive is the important aim of any sales program. The "Sales Ho" Campaign provides quarterly cash awards for both utility and non-utility salesmen . . . and a special trophy award to gas companies. In addition, sales made during the Second Quarter count toward the annual grand award—the Victory Vacation Flight to Mexico City.

Servel
The GAS Refrigerator
THE FLAME OF FREEDOM PROGRAM
Sponsor: COMMITTEE ON GAS REFRIGERATION OF A. G. A. and G. A. M. A.
Donor of all awards: SERVEL, INC.







CYCLONE DAMAGE

1:—Storage Tanks, Vaporizer and Diluting Station.

2:—Foundation of the tower.

3:—Debris of the tower and damaged vaporizer and diluting building equipment.

4:—Damage to right tank piping.

5:—Damage to right tank piping.

6:—Damage to left tank piping.

7:—Damage to left tank piping.

8:—Close-up of the vaporizer, regulating and diluting equipment.

Industrial LP-Gas Installation Successfully Withstands Cyclone Damage

By
W. C. Eggert
Philgas Division
Phillips Petroleum Company

SAFETY in the storage and handling of Liquefied Petroleum Gas has always been of prime concern to the Industry. The efforts along these lines have been evolved in a code promulgated by the National Fire Protection Association. This code, based on sound and careful engineering, attempts to anticipate any eventuality regardless of the nature of the accident and thereby prevent loss of product which might present a hazard to life or property. Occasionally, there occurs to an LP-Gas installation some event which provides an excellent laboratory for the study of the value and efficiency of the precautions employed in LP-Gas storage.

On March 19, 1948 at approximately 2:00 P.M., a cyclone struck the rear of the Unitcast Corporation Plant No. 3 at Toledo, Ohio resulting in extensive damage to the plant and surrounding neighborhood. This plant, constructed during the war by the Defense Plant Corporation, contained a number of guard towers approximately thirty feet high. These consisted of a heavy timber superstructure with a small enclosure at the upper portion. When the LP-Gas system was being erected during the latter months of 1947, one of these towers was moved to make room for the storage. Permission to destroy the tower was requested and was pending but never granted. As a result, a contract was let to move the heavy structure from the vicinity of the storage but unfavorable ground conditions due to bad weather temporarily prevented this work.

This tower directly in the path of the cyclone, was apparently lifted, pushed or pulled over the two 30,000 gallon gross capacity storage tanks and dropped on a concrete block building which housed the vaporizer, regulating and mixing equipment of the LP-Gas standby system.

This accident may be regarded as a freak for only rare and extremely high winds could have moved the massive tower.

Investigation

Approximately two hours after the accident the scene was inspected by an LP-Gas engineer.

The nipple connecting the bottom drain opening and valve on the manhole of the left storage tank had broken affecting the closure of the excess flow valve. The damaged nipple was removed from the tapped hole in the manhole cover plate. When this was replaced with a new nipple and valve, the excess flow valve opened as it should.

Further investigation revealed an open outlet valve on the right storage tank, and a complete break of a one inch unloading compressor suction pipe nipple at a tee fitting next to the two inch vapor line. Again these breaks affected closure of the excess flow valves. When the vapor outlet valve was closed, the excess flow valve opened properly.

In general, the large items of equipment showed little damage but many valve stems were bent, handles broken and bodies warped. There was no evidence of the tanks having been moved on their supports nor were the relief risers bent or loosened in their flanges. Total damage to the installation was estimated to be between $3,000 and $4,000.

Although one storage tank was 75% full and the other 17% full, only a few gallons of liquid were lost and this represented the fuel in the ruptured lines. This small quantity of escaping gas dissipated readily.

As shown in photographs 3 and 4, the concrete block vaporizer and diluter building was completely demolished. The equipment, however, was not seriously harmed.

It is interesting to note that the cyclone was so severe that the roof of a lumber company in the vicinity was lifted and deposited thirty feet away. Porches of residential homes were disengaged and trees uprooted or their limbs broken off. Portions of the tower struck the unloading riser, located more than 100 feet distant, breaking off the valve handles. Other portions were stopped by a steel scrap pile located several hundred feet away.

Conclusions

This unusual accident provides unquestionable proof of the safety of a properly engineered LP-Gas storage system. Certain important details should be noted:

1. In all cases where lines ruptured, excess flow valves closed preventing escape of fuel. Despite the severe damage to the piping, as noted in the accompanying photographs, the only loss of product was the relatively small amount which had been in the lines.
When the ruptured lines were capped off, the excess flow valves opened to permit normal wtihdrawal.

2. The loss of the small quantity of gas from the ruptured lines created no apparent hazard.

3. Although the severity of the cyclone was sufficient to destroy the guard tower, roofs, trees, and porches in the vicinity, the tanks showed no indication of having been moved indicating the reliability of code tanks.

4. An inspection of the close up photographs indicates the value of double swing pipe joints in their ability to withstand excessive movement of the pipe. Although severe stresses resulting from large movement of the pipe were encountered, ruptures in this pipe were relatively few.

L. B. Richards, Harisburg Gas Elected Director of U.G.I.

Leonard B. Richards, President of The Harrisburg Gas Company, was elected a Director of The United Gas Improvement Company on January 25th.

METER REPAIRS

We offer a meter repair service that is prompt and efficient on all types of gas meters.

Our staff of skilled mechanics have had 25 years experience in this work. We can assure you of satisfactory service on a trial shipment of meters.

Adjusting, Clean and Oil or New Dies.

Correspondence regarding details invited

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Educational Program of Institute of Gas Technology Present Plan

The 1948-49 Fellowship students of the Institute of Gas Technology. First-year men, left to right include: C. D. Hinman, J. C. Pace, S. A. Zagnoli, W. T. Turner and R. E. Cooley. Second-year men, continuing left to right, are: H. C. Owen, Jr., J. R. Brough, R. T. Ellington, R. W. Brooks, F. H. Coley and D. E. Helbling. Also a first-year student, but not shown above, is B. R. Bertrando.

IN ORDER to provide the Gas Industry with young men specially trained in its technology, the Institute of Gas Technology annually awards a number of Fellowships to selected college graduates to pursue a two-year course leading to the Master's degree in Gas Technology or a four-year course leading to the degree of Doctor of Philosophy.

The educational program is one of the most important functions in the overall plan which led to the Institute's establishment in 1941 as the research and educational institution for the Gas Industry. These functions, all pointed toward promoting Gas Industry progress, include the prosecution of basic and applied research, graduate-level education in gas technology, the collection and dissemination of technical information, and the stimulation and correlation of research.

Five new men and six second-year men are pursuing graduate studies in the Fall term at the Institute of Gas Technology, Educational Director J. D. Parent recently reported. First year men include Bertrand R. Bertrando, Ray E. Cooley, Clyde D. Hinman, John C. Pace and William T. Turner.

Bertrando is a 1948 chemistry graduate of the University of Illinois and saw service during the war in the USMC. Cooley is a 1948 chemistry graduate of Texas Tech and served two years in the U.S.N.R. Hinman was graduated by Kansas State College in chemical engineering this past June, after an interruption in his education to serve in the air force. Pace is a 1948 graduate in chemical engineering from Texas Tech and saw service in the army during the war. Turner, the youngest of the group, has recently turned 20 years of age and comes with a B.S. in chemical engineering from Louisiana Polytechnic Institute.

This group will be joined at the mid-term by Paul A. Fedde and Sinesio A. Zagnoli. Fedde is now completing his requirements for the degree of B.S. in chemical engineering at the University of Colorado, after two years of service in the army, while Zagnoli is a 1947 chemcal engineering graduate of Purdue University, and spent last year with the Standard Oil Company of New Jersey in Venezuela.

The following Fellows are completing their requirements for the degree of Master of Gas Technology this year: Robert W. Brooks (Purdue), John R. Brough (Mississippi), Frank H. Coley (Virginia Polytechnic Institute), Rex T. Ellington, Jr. (University of Colorado), Don E. Helbling (Illinois Institute of Technology) and Henry C. Owen, Jr. (Texas A. & M.). These men are expected to join the gas industry this June.

Fellows of the Institute of Gas Technology receive a graduated stipend beginning at $125 per month for the first year, in addition to free tuition and payment of laboratory fees. Cooperating member companies pay the Fellows for work performed during the requisite summer employment training period. The Fellows are selected from senior students and graduates in chemical engineering, chemistry, mechanical engineering and related fields on the basis of academic and personal qualifications. Application forms may be obtained from the department chairman of the applicant's college or from the Director of the Institute of Gas Technology, Technology Center, Chicago 16, Illinois.

Fourth Annual Short Course in Gas Technology

The Fourth Annual Short Course in Gas Technology will be held at Texas College of Arts and Industries from May 30 through June 1.

Sponsored by the Southern Gas Association, the course is expected once more to attract more than 200 engineers and industrialists from several states. Besides attending lectures and assemblies, the group will inspect industrial plants in the vicinity and visit the King Ranch, home of Assault and other thoroughbred horses.

Dr. Frank H. Dotterweich, director of the A & I engineering division, is again chairman of the administrative committee. Working with him to plan the course are Chester Young, Dallas, Lone Star Gas Co., chairman of the utilization section; D. T. MacRoberts, Shreveport, United Gas Pipe Line Co., chairman of the production and transmission section; W. B. Wood, Brownsville, Rio Grande Valley Gas Co.; C. A. McKinney, Houston, United Gas Corp.; R. H. Ulrich, Birmingham, Southern Natural Gas Co.; W. C. McGee Jr., Houston, Tennessee Gas Transmission Co.; George Elmer May, New Orleans, New Orleans Public Service; R. M. Htuchinson, Houston, Houston Natural Gas Corp.; W. H. Ligon, Nashville, president of the Southern Gas Association; and R. R. Suttle, Dallas, managing director of the Association.

Meter Index Boxes Now Chemically Cleaned

Superior Meter Co., Inc., Brooklyn, N. Y., announces that its soldered seal index boxes are now being cleaned through a special chemical process. This process automatically removes solder flux, dirt and grease without damaging the tin coating. Each box is then inspected and tested under 12 lbs. pressure to insure uniformity of quality.

In the past, gas company meter repair shops had to soak and scrub these boxes, often with steel wool, to make them ready for use. This new cleaning process, therefore, helps reduce meter repair costs considerably. Gas companies in recent years have tended to replace more and more, old style puttied boxes with soldered seal index boxes which are looked upon as an additional safety measure in gas distribution.

Catalytic Plants May Soon Supply Base Load, Milbourne States

Catalytic cracking plants for the manufacture of gas are not only an effective method of relieving the peak-load problem of the gas utility but offer distinct possibilities as a means of supplying the base load, C. G. Milbourne, chief of the gas production division of Surface Combustion Corporation, told The American Society of Mechanical Engineers during a fuels session of the 69th Annual Meeting in New York in December.

The plants are entirely smokeless in operation, require no gas holders, are unusually compact, relatively low in initial and operating costs and manufacture a gas requiring no purification, Mr. Milbourne declared. No by-products such as tar are produced, he said, permitting installation of plants adjacent to suburban areas where peak-load demands may be highest.

Mr. Milbourne said the first catalytic cracking plant ever to attain full commercial operation for a gas utility began delivering gas to the distribution mains of the Long Island Lighting Company in January, 1948. It is located at Riverhead, near the eastern end of Long Island.*

This particular catalytic cracking furnace breaks down propane or butane vapor into a fixed gas consisting mainly of hydrogen and carbon monoxide. This gas is automatically cold-enriched by the further addition of hydrocarbon vapor to produce a gas of definite and controlled composition. Further developments have now proved that any light hydrocarbon may be used, including natural gas, butane as well as propane, casing head gasoline and straight run gasoline.

Capacity of the Pipe Line Is Increased Fourfold

The ability of the process to crack natural gas permits the relief of peak-load shortages in natural gas areas, Mr. Milbourne said.

"By cracking natural gas followed by enrichment with propane or butane up to the same heating value of the feedstock natural gas, the volume can be increased about fourfold," he declared. "This of course means, in effect, that the capacity of the pipe line can therefore be increased fourfold. The process therefore offers a relatively low-cost method of coping with natural gas shortages where peak demands invariably will be severe regardless of any increases in pipe-line facilities in the future."

Catalytically Produced Gas Is Interchangeable

Mr. Milbourne said two obvious requirements of the finished gas are that it have the same heating value and approximately the same specific gravity as the gas which it supplements. A third requirement, largely dependent on the first two, is that the gas in no way should affect the operation of any of the equipment used on the line.

"Its use must be satisfactory in gas ranges and stoves, heating furnaces, gas refrigerators, and other domestic gas-burning equipment; all industrial gas burners and furnaces such as those used for the forging and heat treatment of metals, and factory heating," he stated. "No burner replacements nor extensive adjustments can be condoned, much less such indications of faulty operation as backfiring or after burning."

Mr. Milbourne declared the catalytically produced gas, after proper enrichment, can be considered a complete gas that may entirely replace the normal supply from the base load manufactured gas plan or as delivered from natural gas distribution lines.

"Flexibility of operation may be considered as consisting of two factors," Mr. Milbourne declared. "Merely by changing the proportions of air and steam, the type of gas may be varied as desired. Second, the fact that the rate of output may be varied in direct proportion to the demand for finished gas, eliminates all need for a gas holder or other means of building up a reserve supply. The gas is made and supplied directly to the mains at desired pressure regardless of demand, of course within the limits of capacity of the installation.

"The system is such that virtually complete automatic operation is obtained. Only two men per shift are required, only one of whom need be technically trained. The plant is controlled from a central control room which houses the instruments, meters, gages, etc. Automatic shut-down equipment is provided which not only shuts down the plant should there be excess pressures in the furnace system or any failure of supply of any of the three feed ingredients, but also sounds an alarm and indicates by means of lights the cause of the shut-down."

May Some Day Supply the Base Load

"While considered today as primarily a stand-by type of plant the cracking plant offers distinct possibilities as a means of supplying the base load," Mr. Milbourne declared. "Many areas are now supplied by existing plants of other types, but where entirely new areas are to be supplied, the relatively low cost of the cracking plant may make it a decidedly attractive means of fulfilling the demand for gas."

** Described in July 1948 issue of this Journal.*

Holmes Named Assistant G.M. Koppers Tar Products

R. R. Holmes, sales manager of the Tar Products Division of Koppers Company, Inc., since October, 1947, has been appointed assistant general manager of that Division, it was announced recently by J. N. Forker, Vice President and General Manager.

In November, 1923, he joined Koppers Company in the accounting department and after serving as a clerk and a department manager, he was made manager of the Koppers White Tar Division at Kearny, N. J. He returned to Pittsburgh in October, 1947, to become sales manager of the Tar Products Division.

In his new position, Mr. Holmes will assist Mr. Forker in guiding the policies and the operations of the entire Division, which operates 21 plants in 16 states.

CLEVELAND

"A" TYPE METERS
"B" TYPE METERS
DIAPHRAGMS

Cleveland Gas Meter Co.
ESTABLISHED 1875
2009 Rockwell Ave., Cleveland 14, O. Phone CHerry 2351

Use UNITED Services for Plant Development

Design
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UGI EQUIPMENT

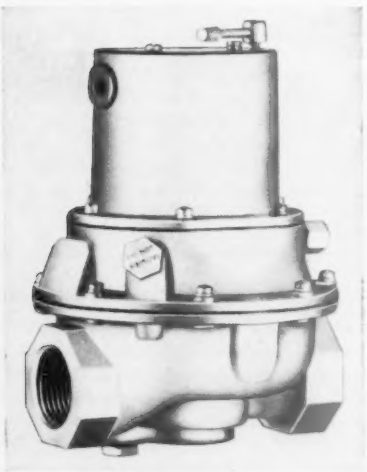
UNITED ENGINEERS & CONSTRUCTORS INC
PHILADELPHIA, PA.

New Equipment and Appliances

Electric Diaphragm Gas Valve

This valve is designed for reliable control of natural, manufactured, mixed and liquefied petroleum gases to space and unit heaters, central floor and wall furnaces and boilers.

Low current consumption of 5 watts. For low or line voltage applications. Standard model and manual opening model with or without electric trip. Envelope size of valve makes it easy and simple to adapt to any gas-fired heating installation.



B-50 Gas Valve

Packless construction. All body parts die formed aluminum of high density and tensile strength. Two small sizes—3/8" and 1/2". Two medium sizes—1/2" and 3/4" and three large sizes—1", 1 1/4" and 1 1/2".

Also available in packaged sets which include the new B-50 valve, the new T-70 snap-action Thermostat, a 9 VA Transformer and thermostat cable.

Made by General Controls Co., Glendale 1, Cal.

"Gas-Phuse"

This new safety device has been designed by Ernest C. Lundt Inc. of Little Falls, New Jersey. Function is to protect high-pressure gas users from hazards of gas leaks, broken regulators or shut-off cocks.

Installed in the service pipe outside the building, between street valve and house, it is designed to pass the normal gas load with a margin for overload conditions, and to close when volume is in excess of present amount.

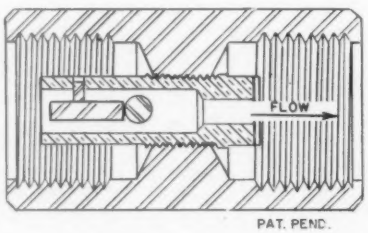


Diagram of Gas-Phuse

The ball shown in the diagram is held by the magnet as indicated. When differential pressure overcomes magnet strength, the ball is carried in the flow stream to the orifice which it closes.

Reversal of pressure, or equalization in horizontal position of the gas-phuse, returns the ball to the magnet.

New Fire Extinguisher

A dry chemical powder extinguisher designed for use against flammable liquid and electrical fires in industrial plants, oil refineries, pipelines, airports and garages has been developed by engineers of Walter Kidde & Company, 40 East 34th Street, New York.

The new extinguisher, made in 20-pound and 30-pound capacities, contains a special dry powder mixture that will not pack or obstruct discharge.

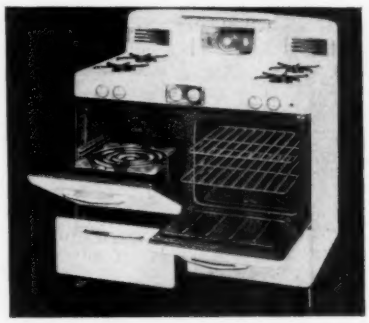
Kidde Powder Extinguisher

Convenient, one-hand operation with trigger-finger control is combined with overall light weight construction to make for speed and effectiveness in combatting Class B and C fires.

Fire-killing dry powder is stated to be more effective against some deep-seated, hard-to-reach fires than conventional extinguishing agents. Gravity and the force of the chemical powder stream carry the powder down to the seat of intense fires, despite rising heat currents.

New "Universal" Range

The Universal Berkshire, one of the outstanding gas ranges of the "Balanced Line for '49," unveiled at the winter Furniture Market in Chicago, features the new waist-high broiler shown on the left of the range. It is the leader of the three models in the completely new 40" range class. Some of the highlights in addition to the waist-high broiler are: one piece main top down through the manifold; a new



The Universal Berkshire

exclusive lamp styling with fluted glass shades; split-minute turner; convenience outlet; chrome bezel in the back guard; divided top; simmer save burners with horizontal simmer flame; white individual plate size burner bowls and grates; 17" oven with one piece lining; oven light; automatic in-a-drawer broiler; whirlpool broiler pan; Monel-mesh radiant broiler burner; and a utility drawer on roller ballbearings.

Six models are available with completely automatic clock control as optional equipment. All eight models may also be supplied with CP standards.

Made by Cribben & Sexton Company, Chicago.

News of the Gas Industry

Domestic Research and Utilization Conference Scheduled

Engineers and others who are concerned with all phases of the use of gas in the home and in development and improvement of domestic gas appliances will gather in Cleveland, Ohio, March 31 and April 1, for the American Gas Association Conference on Domestic Research and Utilization. This conference, which is sponsored jointly by the Committee on Domestic Gas Research, R. J. Rutherford, chairman, and the several utilization committees of the Association, will be participated in by gas company engineers, installation and servicemen; and design engineers and field engineers of appliance manufacturing companies in the East, Midwest and South.

"A parallel conference, sponsored by A.G.A. and the Pacific Coast Gas Association, and participated in by Pacific Coast and Rocky Mountain gas company and appliance manufacturer personnel will be held in Los Angeles, May 26 and 27.

Changing conditions in residential building construction, such as the erection of smaller, tighter houses, many of them without basements, and the demand for higher performance and greater automatic operation of all gas appliances, has presented many new technical problems to all men who deal with appliances—their design, construction, installation and maintenance. At the conferences the very latest technical and operating data and practices will be presented and thoroughly analyzed by leading engineers in their fields.

So. Indiana Gas & Electric Elects Officials

The board of directors of Southern Indiana Gas and Electric Company elected three new directors on January 25th to succeed Justin R. Whiting, President of The Commonwealth & Southern Corporation (Del.), Granville H. Bourne, President of The Commonwealth & Southern Corporation (N. Y.) and James A. Brown of Jackson, Michigan. This follows Commonwealth's sale of its holdings of Southern Indiana common stock earlier this month. The new directors are Walter H. Dreier, Executive Vice President, Union Federal Savings and Loan Association, Evansville; Kenneth H. Weyerbacher, President, Boonville (Ind.) National Bank, and Walter G. Koch, Vice President, International Steel Company, Evansville.

F. B. Culley, President of the Southern Indiana Company, also announced the election of two new vice presidents, A. B. Brown, Vice President and Operating Manager and C. K. Graham, Vice President and Commercial Manager. William B. Tippy, Vice President of The Commonwealth & Southern Corporation (N. Y.) resigned as vice president of the Southern Indiana Company.

A.I.M.M.E. Annual Meeting at San Francisco

The 77th annual meeting of the American Institute of Mining and Metallurgical Engineers is being held in San Francisco, February 13 to 17,—just a century after the Gold Rush of '49.

Sixty-six technical sessions and field trips by air and land are included in the program. Dr. Robert Gordon Sproul, president of the University of California, will be principal speaker at an All-Institute Banquet on February 16. Reese Taylor, president of the Union Oil Company of California, will address a special meeting of the AIME Petroleum Division on the preceding day.

The Petroleum Division has scheduled four sessions and a dinner for the annual meeting. On the program will be reviews of domestic and foreign production, touching upon highlights rather than detailed statistical material. Technological sessions also will be held.

The present chairman of the division, I. W. Alcorn, of Houston, will induct the incoming chairman, Lloyd Elkins, of Tulsa, Oklahoma.

CONVENTION CALENDAR

March

17–18 *Oklahoma Utilities Assn. Annual Meeting,* Tulsa Hotel, Tulsa, Okla.

24–25 *New England Gas Assn., Annual Business Conference,* Hotel Statler, Boston.

28–30 *Midwest Regional Sales Conference,* AGA Residential Gas Section, Edgewater Beach Hotel, Chicago.

April

4–6 *Distribution, Motor Vehicle & Corrosion Conference,* Netherlands Plaza Hotel, Cincinnati.

5–7 *AGA Sales Conference on Industrial & Commercial Gas,* Andrew Jackson Hotel, Nashville, Tenn.

5–7 *G.A.M.A. Annual Meeting,* Broadmoor Hotel, Colorado Springs, Col.

10–12 *Gas Meters Assn. of Florida-Georgia Annual Meeting,* Ponce de Leon Hotel, St. Augustine, Florida.

11–13 *AGA-EEI Spring Accounting Conference,* Hotel Book-Cadillac, Detroit, Mich.

11–13 *Mid-West Gas Assn. Annual Convention,* Hotel Fort Des Moines, Des Moines, Iowa.

11–13 *National Association of Corrosion Engineers,* Netherlands-Plaza, Cincinnati, Ohio.

11–15 *Western Metal Congress and Exposition,* Shrine Convention Hall, Los Angeles.

12–14 *Southwestern Gas Measurement Short Course,* College of Eng'g., University of Oklahoma, Norman, Okla.

18–20 *Midwest Power Conference,* Hotel Sherman, Chicago, Ill.

20–22 *Southern Gas Assn. Annual Convention,* Buena Vista Hotel, Biloxi, Miss.

28–29 *Indiana Gas Assn.* French Lick Springs Hotel, French Lick, Ind.

May

9–10 *A.G.A. Natural Gas Dept. Spring Meeting,* French Lick Springs, Indiana.

9–11 *Liquefied Petroleum Gas Assn.* Annual Convention and Trade Show, Palmer House, Chicago.

9–13 *AGA Industrial Gas School,* Hotel Severin, Indianapolis, Ind.

17–19 *Pennsylvania Gas Assn.* Annual Converntion, Galen Hall, Wernersville, Pa.

23–25 *AGA Production & Chemical Conference,* Hotel New Yorker, New York, N. Y.

24–27 *National Restaurant Exposition,* Atlantic City, N. J.

26–27 *The Natural Gas & Petroleum Assn. of Canada Annual Meeting,* Hotel London, London, Ont.

30 to June 1 *Fourth Annual Short Course in Gas Technology,* Kingsville, Texas.

June

16–20 *Canadian Gas Assn.* Annual Convention, Bigwin Inn, Lake of Bays, Ontario.

20–21 *New York-New Jersey Regional Gas Sales Conference,* Essex & Sussex Hotel, Spring Lake, New Jersey.

24–25 *Michigan Gas Assn.* Annual Convention, Grand Hotel, Mackinac Island, Mich.

September

19–21 *National Butane - Propane Assn.,* St. Louis, Mo.

October

11–14 *American Standards Assn.* Annual Meeting, Waldorf-Astoria, New York.

17–20 *American Gas Assn.,* Annual Convention, Chicago, Ill.

Industrial and Commercial Conference Program Takes Form

The first meeting of the Program and Papers Committee of the Industrial and Commercial Gas Section, American Gas Association, L. E. Biemiller, chairman was held recently to complete arrangements for the 1949 A.G.A. Sales Conference on Industrial and Commercial Gas. The conference will be held at the Andrew Jackson Hotel in Nashville, Tenn., on Tuesday, Wednesday, and Thursday, April 5-6-7, 1949.

Prior to the meeting, all Section committee members were asked to express their views on the various phases of a conference, and the committee gave consideration to those suggestions of the majority. It was decided to have a three day conference.

The tentative program drawn up by the committee has been given careful consideration as to the subjects selected. As it has been set up, the program will have real meat for both industrial and commercial gas men. The men who will present the various papers and those who will lead the discussions will be announced at a later date when all acceptances have been received.

Matarese Elected to Board of Brockton Gas Light Co.

A. D. Matarese, vice-president of the Brockton Gas Light Company, Brockton, Mass., has been elected to the board of directors and named general manager of the company. The election took place at the 1949 organizational meeting of the directors held January 5.

A. D. Matarese

Mr. Matarese, a graduate of Massachusetts Institute of Technology, joined the Brockton Gas Light Company as a student engineer in 1926. He was named manager in 1935, and elected a vice-president a year ago. The company serves approximately 30,000 customers in a 360-square-mile area of Southeastern Massachusetts which includes the world-famous shoemaking centre comprising the City of Brockton and surrounding towns, and seashore towns in the historic Plymouth area.

INDUSTRIAL AND COMMERCIAL GAS SECTION AGA.

Programs and Papers Committee meeting A.G.A. Headquarters. Clockwise around the table: John J. Bourke, A.G.A., New York; F. T. Brooks, Philadelphia Electric Company; A. D. Wilcox, Eclipse Fuel Engineering Co., Rockford, Ill.; J. A. Rockefeller, Public Service Electric & Gas Co., Newark, N. J.; L. E. Biemiller, Chairman, Consolidated Gas Electric Light & Power Co. of Baltimore; Carl H. Lekberg, Northern Indiana Public Service Co., Hammond, Indiana; M. A. Combs, A.G.A., New York; E. V. Fineran, Washington Gas Light Co., Washington, D. C.

New Officers of the Oklahoma Utilities Association for 1949

President: Malcolm Morrisson, Assistant to the President, Oklahoma Gas and Electric Company, Oklahoma City.

First Vice President: D. W. Reeves, General Sales Manager, Oklahoma Natural Gas Company, Tulsa.

Second Vice President: C. N. Robinson, Vice President, Public Service Company of Oklahoma, Tulsa.

Treasurer: H. H. Ferrin, Treasurer, Oklahoma Gas and Electric Company.

Secretary: Miss Kate A. Niblack, 625-626 Biltmore Hotel, Oklahoma City.

Directors—Elected for 3-Year term: D. S. Kennedy, Executive Vice President, Oklahoma Gas and Electric Company, J. Y. Wheeler, Lone Star Gas Company, Ardmore.

Directors—Elected for 1-Year Term: C. B. Day, General Manager, Consolidated Gas Utilities Corporation, Oklahoma City, L. A. Farmer, President, Northern Oklahoma Gas Company, Ponca City; Malcolm Morrisson (see above); A. F. Potter, District Manager, The Gas Service Company, Bartlesville; D. W. Reeves, (see above); W. L. Woodward, President, Zenith Gas System, Inc., Alva.

Directors—Hold-Over: E. C. Joullian, Braniff Building, Oklahoma City; R. K. Lane, President, Public Service Company of Oklahoma, Tulsa; S. I. McElhose, Public Service Company of Oklahoma, Chickasha, Oklahoma; W. R. Thomas, Oklahoma Manager, Southwest Natural Gas Company, Ada, Oklahoma.

Philadelphia Electric Co. Makes No-Accident Record

Philadelphia Electric Company's 8,000 employees rounded out a full year of work in 1948 wtihout a single fatal accident, it was announced recently.

It was the third year in the Company's history during which no fatalities were suffered among its employees. The previous safety records were made in 1941 and 1944. The last fatality was in November, 1947.

In lauding Philadelphia Electric's safety achievement, Roy M. Godwin, director of safety for the utility, said, "This fine record indicates conscientious employee application of rules and methods in carrying out the various duties involved in each job." He urged "continuous vigilance throughout 1949 in order to maintain the high safety standard set during the past year."

Laclede Gas Light Co. Elects Eddins V. Pres.

Henry A. (Tex) Eddins has been elected a vice-president of The Laclede Gas Light Company of St. Louis, according to an announcement by Robert W. Otto, president of the Company.

Henry A. Eddins

Mr. Eddins, a graduate of Texas A & M College was associated with Stone & Webster Service Corporation from 1931 until he joined Laclede, except for military service in World War II. He accepted a position as Assistant to the President of Laclede on January 1, 1948.

During his utility career he has had experience on construction, rates, sales, engineering, finance, re-organization and management involving manufactured and natural gas companies.

Norton Company Elects Officers and Reviews Progress at Annual Meeting

William R. Moore was elected a director of Norton Company, Worcester, Mass., at the 63rd annual stockholders' meeting held in Norton Hall on January 18th. He is currently a vice president of Norton Company.

Mr. Moore entered the employ of Norton Company as an assistant sales engineer in September 1914 and became successively sales engineer, assistant sales manager, director of market research and sales manager. Appointed general sales manager in January 1939, Mr. Moore was made vice president in charge of national accounts and the sale of refractories and other products.

George N. Jeppson, chairman of the board, presided at the stockholders' meeting.

Milton P. Higgins, president, announced that the combined sales of its Worcester plant and all subsidiaries for the past year topped 1947 by 11 per cent. He singled out refractories and Norbide abrasive sales as showing the largest percentage of increase.

One of the most important factors contributing to this increase, Mr. Higgins explained, has been the steady increase in man-hour production which has improved so that today it is higher than at any time in the history of the company.

Reporting on activities in the company's abrasive division, Andrew B. Holmstrom, vice president and general manager of the abrasive division, discussed future plans for expansion including the purchase of a plant near Three Rivers, Quebec, which, when re-equipped, will increase present facilities for the manufacture of Crystolon abrasive by 50 per cent.

Acceptance of L-P Gas

Use of liquefied petroleum gas as a domestic as well as an industrial fuel continued its growing acceptance during 1948 as reported by Mark Anton, President of Suburban Propane Gas Corporation.

During hte year Mr. Anton stated the growth of the young industry kept pace with that of the last decade. The marketing area largely beyond the reach of gas mains continues to develop steadily. Mr. Anton based a favorable forecast for the industries' growth during 1949 on the greater availability of liquefied petroleum gas and its continued widespread acceptance.

"The growth picture of the industry was reflected most favorably in our own operation in nine Atlantic Seaboard States," Mr. Anton said. "Our market extends from the suburbs to the rural districts. During the year the demand for our gas, service and appliances resulted in a 20% growth of our business over the previous year.

"Gas appliance manufacturers today regard the liquefied petroleum gas business as an important segment of their market. It has represnted an estimated 30-40% of their 1948 unit production. One out of every four gas ranges today is manufactured for use with liquefied petroleum gas."

Commenting on the gas appliance market, he cited the tremendous increase in the demand for water heaters as the year's high point in the Corporation's appliance business.

Referring to the availability of the product, he pointed out that many major petroleum companies are installing new and larger facilities for extracting liquefied petroleum gases to meet the increasing demands.

Florence Stove Co. Appoints New General Sales Manager

C. Fred Lucas has been appointed general sales manager of Florence Stove Company, Gardner, Mass., to succeed Robert H. Taylor who was recently elected president, according to an announcement by Mr. Taylor. Mr. Lucas, who has been sales manager of the Florence Southern division, assumed his new office January 1, with headquarters at Gardner.

E. A. Bailey C. F. Lucas

Mr. Lucas, a graduate of the University of Pittsburgh, joined the Florence organization in 1940 as electric range sales supervisor in the Southern division. In 1941 he was appointed Southern sales manager with offices in Atlanta, Ga., and has served in this post up to the present time, with the exception of one year in which he was New England sales manager.

Edwin A. Bailey, who has been Florence sales representative in the North Carolina territory, will succeed Mr. Lucas as Southern division sales manager with headquarters in Atlanta, Ga.

C. S. Stuckenholt Heads the W. J. Schoenberger Company

C. S. Stuckenholt was elected president of the W. J. Schoenberger Co., meeting of directors held January 7th.

Resignation of W. J. Schoenberger as president was regretfully accepted so that he could devote himself to his family, his numferous civic and charitable interests and to travel. He had been head of the company since 1922.

Stuckenholt, a native Clevelander, had been vice-president in charge of sales of Schoenberger since 1942. He became affiliated with the company in 1936 after having spent 11 years with the American Gas Association testing laboratories.

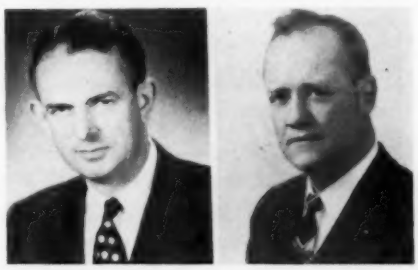
Control of the company was purchased last September by Bell Aircraft.

Sprague Elects Werthman V.P. to Succeed Roseberry Now Retired

F. L. Fairchild, President of the Sprague Meter Company of Bridgeport, Conn., announces the election of Elmer J. Werthman as Vice President of the Company. Mr. Werthman has served for the past twenty years as Manager of the Davenport Branch. He has been associated with the Gas Industry practically all his life, having previously been employed by the United Light and Power Company, Davenport, Ia., as Superintendent.

Elmer J. Werthman

Mr. Werthman follows E. H. Roseberry, retiring Vice President ,who resided in Los Angeles and held that position since 1939. Both men have a host of friends in the Industry.



H. Lee Spencer E. H. Roseberry

H. Lee Spencer has been appointed Western Manager and is in charge of the Los Angeles Branch of the Company. He served the Company for over ten years having covered parts of the Pacific Coast and the Rocky Mountain States, and has had wide experience in the Industry.

W. H. Jones Appointed Pur. Agt. Philadelphia Electric Co.

W. H. Jones, division superintendent of the Philadelphia Electric Company, at Morton, Pa., was recently named purchasing agent for the utility.

Mr. Jones joined the Philadelphia Electric Company in 1926. His first employment was as a junior engineer. He later became, successively, gas superintendent and electric superintendent at Morton and division superintendent at Coatesville.

Affiliated Gas Equipment Inc. Formed—Includes Bryant, Payne, Day and Night Co's.

Formation of Affiliated Gas Equipment, Inc., with headquarters in Cleveland has been announced by Lyle C. Harvey, president and general manager of the new corporation. The new organization represents the combining in a single unit of three well known manufacturing companies with a full line of products in every phase of the heating, water heating and year 'round air conditioning fields.

Lyle C. Harvey

This unique organization brings together, under single management, three pioneering firms in the gas heating and allied fields, all of which were previously subsidiaries of Dresser Industries, Inc. These are the Bryant Heater Company of Cleveland, the Day & Night Manufacturing Company of Monrovia, California, and the Payne Furnace Company of Beverly Hills, California. Five major producing plants are merged in this single organization and will manufacture a complete line of gas-fired equipment for both heating and water heating in the residential, commercial and industrial markets. Two of the Bryant Heater Division plants are located in Cleveland, with a third in Tyler, Texas. The Day & Night Division property is in Monrovia, California, while the Payne Furnace Division plant is in Beverly Hills, California.

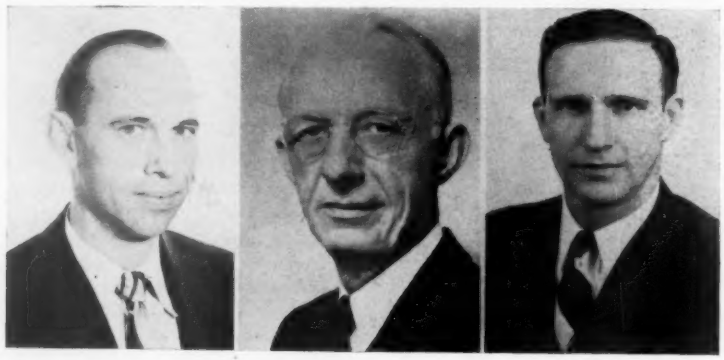
Years of experience in designing, producing, marketing and finance are combined in the executives of the new Affiliated Gas Equipment, Inc.

President Lyle Harvey, who is general manager and a director of AGE, is also general manager of the Bryant Heater Division. He is a past director and executive committee member of the American Gas Association, and a director and past president of the Gas Appliance Manufacturers Association.

Associated with Mr. Harvey are Philip W. Scott, formerly secretary-treasurer of the Bryant Heater Company, who occupies a similar post with the new AGE. W. J. Bailey, Jr., is also a vice president and director of AGE while serving as general manager of the Day & Night Division. General Manager E. L. Payne of the Payne Furnace Division, is a vice president and director of AGE.

Rockwell Manufacturing Co. Announces New Appointments

The Rockwell Manufacturing Company has announced the appointment of Howard J. Evans as Chief Engineer of its DuBois Division.



Howard J. Evans L. M. Oaks F. V. Snodgrass

Mr. Evans was previously in charge of general engineering of gas meter and regulator products at the Pittsburgh Equitable Meter Division, where he served for 13 years.

He played a major part in the development of the new style domestic meters and specialized on the orifice meter and gauge line of products. He has had considerable field experience, and for the past 10 years has lectured at the metering schools, conducted annually by the Universities of Oklahoma, Iowa and West Virginia.

At DuBois, Mr. Evans, will be responsible for the engineering on the Company's tin and aluminum domestic gas meters used in measuring natural, manufactured and liquefied petroleum gases.

L. M. Oaks has been appointed Supervisor of Gas Utility Sales for the Pittsburgh Equitable Meter Division in the Pittsburgh area. The announcement was made by W. S. Andrews, Manager of the Pittsburgh District Office.

Mr. Oaks has had long experience in gas meter and regulator sales work, and his new duties will call for him to act as coordinator and give assistance to sales engineers handling this line of the Company's products.

He started as a Service Engineer with the Equitable Meter Manufacturing Company back in 1931 which was consolidated with the Pittsburgh Equitable Meter Company.

Floyd V. Snodgrass has been appointed General Manager of the Nordstrom Valve Division's Oakland, California plant.

Mr. Rockwell stated that this is another example of adherence to Company policy of promotion from within. Floyd Snodgrass started with the Company in 1935 as a machinist in the Oakland plant. He advanced through the organization to Plant Manager, Ass't. General Manager and now General Manager.

Transcontinental Awards Order for Cooper-Bessemer Compressors

The Cooper-Bessemer Corporation has been awarded the largest single contract of its kind, which calls for the construction of 21 new-type "Turboflow" gas engine driven compressors, the largest of their type in the world, for the Transcontinental Pipe Line Corporation's proposed 30" pipe line, which is to be built by Fish Constructors, Inc., of Houston, Texas. This award was announced by Gordon Lefebvre, President and General Manager of Cooper-Bessemer. Unusual fuel economies in the operation of these engines, have been largely responsible for Transcontinental Pipe Line Corporation award. The contract represents authorization to build 70% of the gas engine driven equipment required for their 1949 construction program.

The 10-cylinder GMW gas engines scheduled for this project are rated at 2,400 brake horsepower each. These engines will draw 15% less fuel from the line than formerly needed to operate conventional gas engines of equal horsepower.

Rocky Mountain Gas Assn.

At the Annual Meeting held December 13th, all of the present officers and directors were reelected for 1949. Russell Britton, Director of Vocational Education, Denver Schools, and Mr. Fred Schiemann, Supervisor of Industrial Education, were present to give additional information concerning training classes for members. Total membership is reported as 247, including 218 paid members, 8 code authorities, and 21 honorary members. This is as compared with a total of 205 members on December 1, 1947.

The first session of the American Gas Association course on Gas Appliance Selling was held January 3rd, under the sponsorship of the Rocky Mountain Gas Association.

Other courses on Appliance Salesmanship, Venting Gas Appliances, Combustion & Condensation, Electrical Controls, Pipe and Orifice Sizing, Estimating Heating Costs and Commercial Heating, will be commenced at a later date.

President is Dick Tanner. Address of the Association is 327 C. A. Johnson Bldg., Denver 2, Colo.

Main Entrance to Skinner Plant at South Bend

M. B. Skinner Co. Completes 50 Years of Service

A fifty year span of unique service to various industries has just been completed by the M. B. Skinner Company of South Bend, Indiana. During this period Skinner has filled an unusual position in American industry; supplying specialized pipe repair clamps and allied products.

Originally established in Chicago, Skinner has operated in South Bend, Indiana since 1928 in a plant setting which is likewise unique in American industry. Every Skinner employee takes pride in the appearance of the plant grounds which resemble a private estate rather than a factory. Skinner was a pioneer in profit sharing—beginning 1934 with a record of no strikes or work stoppages since the founding of the Company. The average length of service with the Company is 12 years.

In times of pipe shortages, such as the present, Skinner service is especially valuable in pipe line maintenance coupled with prompt delivery service. A high percentage of all orders are shipped the same day as received.

Meter and Service Regulator Repair Problems

A Round Table Conference of Southern Gas Association will be held on February 18th at the Auditorium and Training School, New Orleans Public Service, Inc., Gas Department, New Orleans, sponsored by J. H. Collins, Sr.

The purpose of the conference is to enable the personnel of member companies of the Southern Gas Association to exchange and discuss, on an informal round table basis, their ideas and methods concerning meter and regulator repair activities.

The Conference should be attended by those closely associated and responsible for the meter and repair activities of the respective companies. Everyone present will have the opportunity of exchanging ideas and gaining information relative to efficient repair procedures and materials.

Where possible and advisable, physical demonstration of repair and test metthods will be made.

Indicating Recorders and Controllers—Micromax Model 5, described in catalog ND44(1) issued by Leeds & Northrup Co., Philadelphia 44, Pa. This publication gives complete specifications in convenient, tabular form. Among the indicating recorders are single-point, two-point and multiple-point instruments which measure the values detected by one or as many as 16 primary elements.

Gas Analyzers — simplified, portable gas analyzers for on the job use by control engineers and laboratory technicians, are described in Bulletin 213 of Burrell Technical Supply Co., Pittsburgh 19, Pa. Two Models of the "Industro": Model B for determination of Carbon Dioxide, Oxygen and Carbon Monoxide; Model C for determination of all gases tested by Model B plus combustibles such as Hydrogen and Methane.

Tests gaseous flue, flue gas, heat treating atmospheres. Natural, producer, blast furnace and mixed gases.

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The mark of
unerring dependability
in purification

GAS PURIFYING MATERIALS CO., INC.
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COLUMBIA CONVERSION
GAS BURNERS

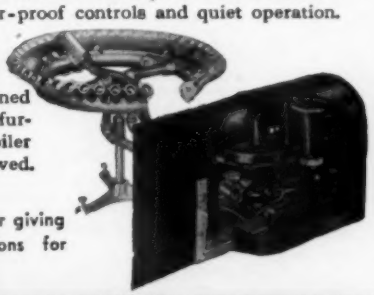
More Popular Than Ever
With Home Owners and Dealers

DEALERS SAY—Columbia Nutipe Burner has a common sense design. Closely duplicates operation of appliance when solid fuel was used. Easy to install. Seldom requires service.

HOME OWNERS SAY—Gives quick heat transfer and earlier delivery of heat to rooms. Has tamper-proof controls and quiet operation.

MODEL P-ZE
shown here is designed for use in warm air furnaces or round type boiler where grates are removed.

Send for free folder giving complete instructions for installing



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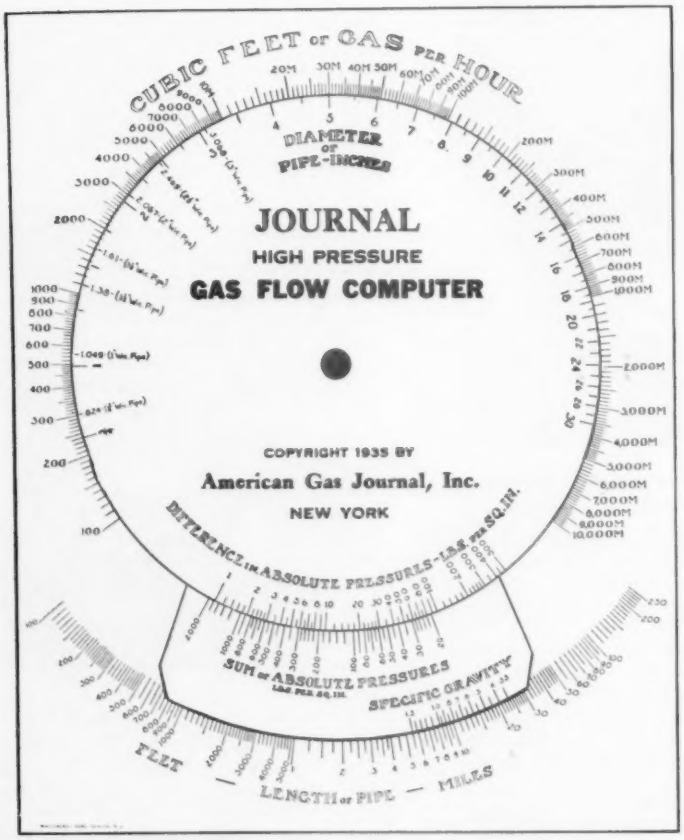

These Improved Gas Flow Computers are available in durable plastic, encased in a convenient leatherette cover with complete instructions.

Actual Size 6¼ x 7½

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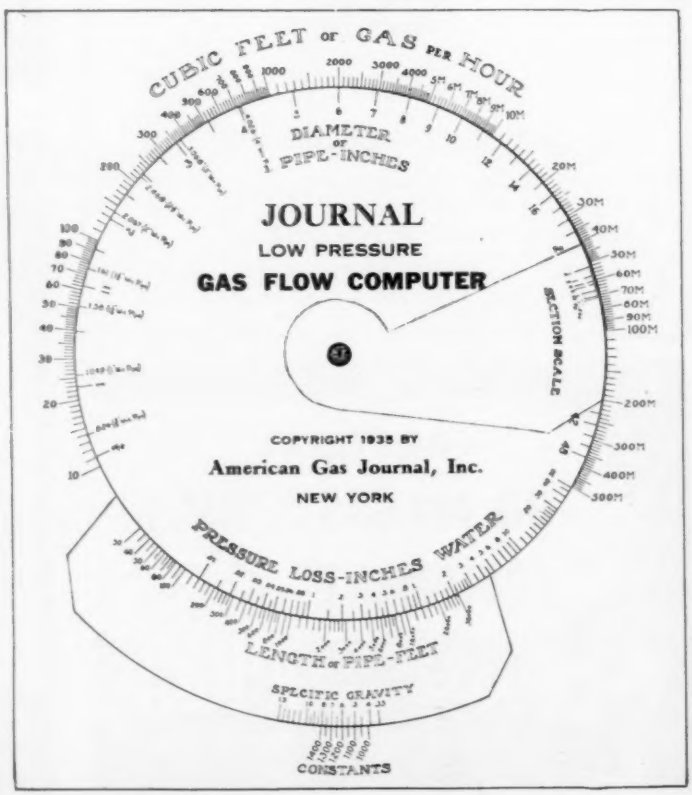
High Pressure Computer Range:

Cu. Ft. of Gas Per Hour—100-10,000 M
Diameter of Pipe Inches ¾-30
Difference in Absolute Pressure—Lbs. per sq. in. 1-500
Sum of Absolute Pressures—Lbs. per sq. in. 20-2000
Specific Gravity 1.5-.35
Length of Pipe—Feet 100-5000
Length of Pipe—Miles 1-250

Low Pressure Computer Range:

Cu. Ft. of Gas Per Hour—10 to 500 M
Pipe Diameter ¾" to 48" (including standard and actual weight up to 4")
Pressure Loss Inches .01-10.
Length of Pipe—Feet 30-30,000
Specific Gravity 1.5-.35
Constants 1400-1000

Price $4.00 Each. Postage Prepaid



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Servel Presents Dramatic Skit at Cleveland

A clever, dramatic, forty minute skit was presented by the Homemaker's Institute of Servel at the American Gas Association Home Service Work Shop in Cleveland on January 26.

Entitled "A Dream of a Refrigerator" the skits' two featured performers were two talking gas refrigerators—the new W-700 model and the W-800.

Taking a page from the dream sequence movies D. K. Patterson of Servel's Advertising Department presented a forty minute skit in which the home service girl falls asleep while studying materials on the new Servel models and in her dream the new refrigerators describe their own fine features.

Martha Carnes, Servel's Home Service Director, took the role of the dreaming home economist and the rest of the cast include Miss LaVerne Heady as a housewife customer and Miss Janet Nauman as the typical gas utility home service director.

In staging the six scenes the Servel group used a divided stage with scenes moving from one side to the other making a fastly paced presentation.

Welsbach-Kitson Division Appoints Leader in N. England

The Welsbach Corporation, Kitson Division, of Philadelphia, Pa., announces the appointment, effective February 1, of Joseph Leader, 68 Marlborough Street, Chelsea 50, Mass., as their New England Sales Representative, succeeding the late Richmond Seabury.

Mr. Leader, who has long been identified with the plumbing and heating industry, and who is very well known among the plumbing and heating wholesalers throughout New England, will cover the States of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, and Connecticut, with the exception of Fairfield County.

Engineers Establish Royalty on Underground Natural Gas Storage Methods

D. V. Meiller and M. G. Markle, who are associated with the Public Service Company of Northern Illinois in gas engineering work and who invented a system for the underground storage of natural gas under high pressure, have announced adoption of a policy which will make available to any prospective user of the system a license under their patent rights at a low uniform royalty rate.

Licenses, they said, will be granted to any responsible parties who wish to install or have installed a high pressure gas storage system covered by their pending patent application.

The underground gas storage system developed by Meiller and Markle already has been used successfully in installations having a capacity of more than 95,000,000 cubic feet of natural gas.

The Meiller-Markle high pressure, underground storage system was described in detail in our March 1947 issue.

Progress in Gas Conservation

Great strides are being made in gas conservation in Texas, according to Hines H. Baker, president of Humble Oil & Refining Company.

Mr. Baker says that "the industry is spending 250 million dollars in Texas in a postwar gas conservation program to save nearly 2¼ billion cubic feet daily of casinghead gas produced with oil. Nearly 40 per cent of this program has already been completed and another 36 per cent will be completed in 1949. The program involves the construction of 138 gas conservation plants, of which 82 have been completed, 43 are under construction, and 13 are planned for the near future."

He estimated that when the entire program is completed in 1950, the amount of casinghead gas conserved will be 90 per cent or more of the maximum that can be economically utilized, compared with 70 per cent currently being utilized.

He commended especially the conservation efforts of the Texas Railroad Commission, stating that the problem of gas conservation was magnified by the increase in oil production during the war and by the shortage of materials needed to build gas conservation plants. He interpreted recent action of the Texas Railroad Commission in seeking to shut down oil production in a number of fields to conserve casinghead gas only as a means of hastening progress by the industry, and expressed the view that most operators are as keenly interested in gas conservation as is the Commission itself, and are moving toward this goal as rapidly as materials become available.

The Estate Stove Company Appoints C. M. Dunn V. P. in Charge of Sales

The Estate Stove Company was organized on January 1, 1949 as a sales company for merchandising products of Estate Heatrola Division, it has been announced by John A. Seubert, Executive Vice President of the new company. Both the sales company and the manufacturing division remain wholly owned subsidiaries of Noma Electric Corporation.

In the new Company, Cecil M. Dunn has been appointed Vice President in Charge of Sales. Lewis W. Selmeier continues as Advertising Manager.

This reorganization is designed to achieve the complete integration of all merchandising activities on Estate products. The change is one phase of Estate's stepped-up program of advertising and sales promotion for 1949. A vigorous program of big-space national advertising is scheduled, with a unique copy strategy and follow-through plan to bring maximum help to the individual dealer. Plans are also being initiated to set up warehouse and service facilities in key centers throughout the country.

Increase in New York City Gas Rates

The Consolidated Edison Company of New York was recently served with a copy of a petition by the City of New York to the Public Service Commission asking for a rehearing on the recent increase in the Company's gas rates.

This petition was based upon technical questions relating to the Commission's basis for its order.

"If a rehearing is had," Ralph H. Tapscott, Company president, said, "the Company expects to show that even the interim rates in question are grossly inadequate. These rates would prevent an actual loss in gas operations, but they are far from sufficient to enable the Company to attract the capital necessary to properly serve the growing public of New York without going dangerously in debt.

"This is the first increase in gas rates since the rates were set in 1922. The present increase of about 25 per cent overall is much less than the increases which inflation has caused in almost all prices, rates, fares and other costs in the City.

"A business must make a profit, over and above bare expenses, if it is to continue growing and bettering its service to the public. There must be a sufficient return on funds invested in the business so that new capital may be attracted to the enterprise and invested in larger and better plants. This is especially true when demands are increasing.

"Gas sales in Consolidated Edison's metropolitan area in 1948 reached an all-time record. It is expected that these sales will continue to grow. This, in turn, means that new production facilities must be built. It takes money to build plants. This money must be attracted to the business if New York is to continue to receive from Consolidated Edison the type of gas service it has been accustomed to getting."

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SERVONE offers full Winter protection against freezing of Mains and Services in exposed places.

NON-EXPLOSIVE . . NON-CORROSIVE
NON-INFLAMMABLE

One 8 oz. can will treat a 1½" Service 40 feet long.

Marketing Prospects of Alberta, Canada, Oil and Gas

Exploration work now being undertaken to determine oil and gas possibilities in the Winnipeg, Manitoba area may result in the abandonment of plans to construct a $49,000,000 natural gas pipeline from Alberta oil fields to Winnipeg.

Possible effect of the Manitoba exploration on the projected pipeline was raised at a hearing of the Dinning Royal commission in Calgary, Alta., investigating natural gas reserves in Alberta.

F. A. Dixon of New York, president of a rival pipeline company proposing to export natural gas to the Pacific coast, said he "doubted" that the Winnipeg line would ever be built. He gave as his reason, exploration now under way "in the vicinity of Winnipeg" for oil and gas.

Earlier the commission was given a detailed outline of the projected pipeline that would pipe natural gas from Alberta more than 700 miles eastward to Winnipeg.

Julian Garrett of Edmonton, formerly vice-president and general manager of the Edmonton gas system, said the main pipeline would start near Gleichen, Alta., about 50 miles east of Calgary, and roughly follow the C.P.R. eastward through Regina, Sask., to Winnipeg, Man. Branch lines would serve Saskatoon and Prince Albert in Saskatechewan and other centres adjacent to the main line.

The pipeline would be backed by Osler, Hammond and Nanton, Winnipeg financiers. Mr. Garrett said the line would serve some 490,000 people. He estimated that sales after five years would be 26,000,000,000 cubic feet a year. In addition to $49,000,000 for the line, distributing systems would cost another $26,000,000.

"The cost of fuel now available in these areas is such that gas from Alberta can be sold there at favorable competitive rates with all the usual advantages of gas," Mr. Garrett said.

A bill of incorporation for the pipeline company, submitted at the last session of the Federal House, had been withdrawn at the request of the board of transport commissioners so a more general bill could be enacted. He said he understood the new bill is being drafted.

Mr. Garrett referred to a submission made earlier to the commission by Dr. G. S. Hume of Ottawa, chief Dominion geologist who estimated that at least 14,800,000,000,000 cubic feet of gas is available in Alberta.

Mr. Garrett said at the present rate of 50,000,000,000 cubic feet a year consumption in Alberta, 56,000,000,000 a year for the Seattle-Vancouver project, and 26,000,000,000 a year for his own project, the minimum reserves in Alberta would last 112 years. If export was restricted to the prairies, reserves would last for 195 years.

Developments of natural gas supplies in western Montana and Wyoming might end plans of United States interests to construct a $100,000,000 pipe line from Alberta to the Pacific coast. This fact was revealed during an investigation into the natural gas reserves in Alberta by the Dinning Royal Commission.

James Walker of Edmonton, Canadian manager of the Northwest Natural Gas Company of Seattle, said no pipeline will be built from Alberta to the coast if gas fields in western Montana and Wyoming are opened before construction on the line starts.

The Seattle company official also said plans for construction of the pipeline would be abandoned if a substitute for gas was discovered that could be produced cheaper at the coast than the imported Alberta gas.

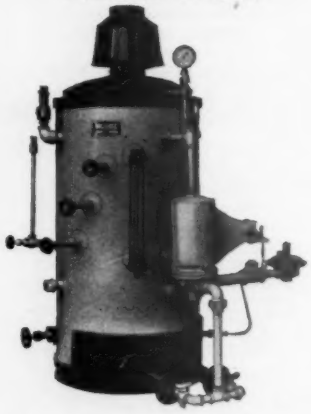
Mr. Walker presented a company brief before the commission on its case for receiving export permits for natural gas. The company was incorporated last year to construct and operate a pipeline supplying British Columbia and the Pacific Northwest United States with natural gas from Alberta.

It would not be feasible to construct the pipeline if a gas substitute could be produced cheaper at the Pacific coast, Mr. Walker said. He also said it would be cheaper to construct a pipeline from the Montana and Wyoming fields should they prove capable of supplying coast cities with natural gas.

However, he said if a process for making high B.T.U. gas from coal were found after the pipeline was constructed, then Alberta's coal industry would be in a favored position to produce such gas and export it via the pipeline.

LATTNER GAS BOILERS

1 H.P. to 45 H.P.



2 H.P. Gas Fired Pressing machine boiler. 100 lbs. ASME Code.

P. M. LATTNER MFG. CO.

CEDAR RAPIDS, IOWA

H. Emerson Thomas and Associates Inc.

Due to the expansion of activities during the past year, H. Emerson Thomas and Associates have now incorporated and operate as liquefied petroleum gas engineers, contractors and consultants specializing in the design and installation of utility plants, industrial standby plants and bulk plants.

The principals in this organization, H. Emerson Thomas, President, and Paul F. Peacock, Jr., Vice-President, have been exclusively in the LP-Gas business for approximately twenty years and have promoted many of the activities in this country. Since the war this organization has engineered approximately thirty LP-Gas plants.

FOR SALE

Principal Equipment in the Ypsilanti Gas Plant

Total Production Capacity: **900,000 Cu. Ft. Per Day**

(a) Water Gas (80%) **700,000 Cu. Ft. Per Day**

(b) Coal Gas (20%) **200,000 Cu. Ft. Per Day**

DESCRIPTION

(A) 1. One 7'0" Water Gas Set (back-run, hand operated).

(C) 2. One 4'0" Water Gas Set (up-run only, hand operated).

(D) 3. One Battery of 5 Coal Gas Benches, horiz. through retorts, full depth producers. 6—11'6" long retorts per bench. Only three of the benches are complete. The Retorts and setting above the operating floor have been removed from two benches.

(A) 4. One Water Gas Blower, Clarage Type R No. 2 (motor).

(A) 5. One Water Gas Blower, Sturtevant No. 7 (steam turb).

(A) 6. One Gas Relief Holder of 60,000 Cu. Ft., two lift with masonry tank.

(B) 7. One Coal Gas Exhauster, Roots No. 6 (vertical steam engine drive).

(B) 8. One Coal Gas Exhauster, Roots No. 5 (vertical steam engine drive).

(B) 9. One Water Gas Exhauster, Roots No. 6.

(B) 10. Two Coal Gas Scrubbers, primary and secondary.

(B) 11. One Tubular Gas Condenser.

(A) 12. Two Purifier Boxes, 10 ft. diam.

(A) 13. One Rect. Purifier, two compartment, 16' x 32'.

(C) 14. One Station Gas Meter, Roots rotary, size 3.

(B) 15. One Station Gas Governor, Connelly 8" balanced valve.

(B) 16. One City Booster, Sturtevant No. 4 (motor drive).

(B) 17. Two Customers Boosters, Roots (Acme) Size 59 (motor drives).

(C) 18. One 150 H.P. Boiler, Houston horiz. return tubular, with stack and turbine air blower.

(A) 19. One 80 H.P. Boiler, Kinnon horizontal return tubular.

(B) 20. Necessary pumps, oil storage tanks, tar storage tanks, separators, plant piping, etc.

Condition: (A) Good; (B) Fair to Good; (C) Fair; (D) Fair to Poor.

Write City Manager, City of Ypsilanti, Michigan

Position Open

Gas Engineer—familiar with the theory and operation of blue and carburetted water-gas machines, who is ambitious to study all other gas-manufacturing processes, including the complete gasification of coal, for Research Department of a large company located in the Middle Atlantic region. Excellent opportunity for a man, preferably under 40, with good chemical or mechanical engineering education and ability to initiate and carry on new developments. Give full details of education, experience, references and salary expected. Address Box 198, c/o American Gas Journal, Inc., 53 Park Place, New York City 7.

INDEX TO ADVERTISERS

American Meter Co.	—	Maloney Company, F. H.	—
American Stove Co.	—	Metric Metal Works	—
Autogas Co.	—	Mulcare Engineering Co.	43
Bryant Heater Co.	47	National Airoil Burner Co.	41
Cast Iron Pipe Research Association, The	4-5	Norton Co.	2
Chaplin-Fulton Mfg. Co.	—	Pacific Gas Corp.	—
Clark Bros. Co.	—	Phillips Petroleum Co.	—
Cleveland Gas Meter Co.	35	Pittsburgh Equitable Meter Division, Rockwell Manufacturing Co.	Front Cover
Cleveland Heater Co.	16	R. P. B. Corporation	26
Cleveland Trencher Co.	—	Reynolds Gas Regulator Co.	26
Columbia Burner Co.	41	Roberts-Gordon Appliance Corp.	—
Connolly, Inc.	18	Robertshaw-Fulton Controls Co.	—
Cooper-Bessemer Corp.	—	Roper Corp., Geo. D.	—
Cruse-Kemper Co.	22	Safety Gas Main Stopper Co.	30
Detroit-Michigan Stove Co.	—	Semet-Solvay Engineering Division, Allied Chem. & Dye Corp.	3
Dresser Industries	—	Servel, Inc.	31
Dresser Mfg. Division Dresser Industries	6	Skinner Co., M. B.	23
Empire Stove Co.	—	Sprague Meter Co.	Back Cover
Estate Stove Co.	—	Stacey Bros. Gas Construction Division of Dresser Industries	10
Gas Machinery Co.	8	Stacey Manufacturing Co.	28
Gas Purifying Materials Co.	41	Superior Meter Co.	21
General Gas Light Co.	—	United Engineers & Constructors, Inc.	35
Hydrauger Corp.	26	Vulcan Proofing Co.	7
Ka-Mo Tools, Inc.	—	Wachs Co., E. H.	—
Lantern Meter Repair Co.	33	Whittington Pump & Engineering Co.	—
Lattner Mfg. Co., P. M.	44		
Lube Jack Co.	—		

Positions Open

Wanted, one Manager and one Salesman for gas property Vermont conversion to propane-air. Write Box 196, c/o American Gas Journal, Inc., 53 Park Place, New York City 7.

Young technical graduate (not over thirty) with some experience in water gas production and distribution. Splendid opportunity assisting in supervision of production, distribution, and industrial gas applications. Location, southern New England. Replies confidential. Address Box 197 c/o American Gas Journal, Inc., 53 Park Place, New York City 7, giving experience, education and personal data.

Sound Slide Films on Safety Through Nat. Safety Council

A new series of six sound slide films, entitled "Human Factors in Safety," has been released by the National Safety Council to aid management's foreman training program.

The 35 mm., 33-1/ r.p.m. films comprise a visual training course for foremen that deals with production and job attitudes, as well as safety.

The cartoon technique is used in two of the films, and action shots of workers on the job add realism to the plant scenes. The narration is by professional radio announcers. Dr. J. L. Rosenstein, psychologist and associate professor at Chicago's Loyola University, served as an advisor during the production of the series.

Each film deals with one aspect of the complex art of handling people. The series shows supervisors how to train new workers, how to keep experienced workers alert, and how to win the respect, cooperation and loyal support of their men.

The six films are entitled, "The Secret of Supervision," "Teaching Safety on the Job," "People Are All Alike," "Everybody's Different," "Teamwork for Safety" and "Safety Case Histories." The last film, presenting instances of actual accidents, can be stopped after each case to enable audience discussion of what caused the accident and how it could have been prevented by proper supervision.

For further information, write the National Safety Council, 20 North Wacker Drive, Chicago 6, Ill.

Union Gas System Elects H. F. Johnson, President

Harrison F. Johnson of Independence, Kansas, who has served for approximately ten years as Vice President of Union Gas System, Inc. has been elevated to the presidency of that Company succeeding the late Paul R. Johnson whose death occurred December 17, 1948.

He graduated from the School of Engineering at the University of Kansas in 1927 and spent the next three years with Ford, Bacon and Davis on construction of major pipe lines in the southwest. During the period from 1930 to 1936 he worked with the Canadian River Gas Company, Amarillo, Texas, on the pipe line extending from Amarillo to Denver.

Duo-Therm Div., Motor Wheel Corp. Announces Appointments

Joseph H. Kennedy has been named district manager for the New England territory of the Duo-Therm Division of Motor Wheel Corporation, Lansing, Michigan.

Mr. Kennedy has been associated with the Duo-Therm organization for the past twelve years. He was appointed field engineer in 1946, and in 1948 was promoted to assistant service manager.

Walter Thompson has been appointed field research engineer. He began work at Duo-Therm in 1936. Since then he has served as a research engineer, with the exception of four years in the army.

T. R. Merrill who fills the post of Asst. Service Manager, has a record of long service with the Duo-Therm organization. He joined the Motor Wheel Corporation in 1923, and transferred to the Duo-Therm Division in 1933.

National Radiator Appoints J. W. LeRoy Assistant V.P.

The appointment of J. W. LeRoy as assistant to Carroll M. Baumgardner, vice president for sales, was announced recently by The National Radiator Company, Johnstown, Pa.

For some years Mr. LeRoy has been associated with the Berger Mfg. Div. of Republic Steel Corp., Canton, O., as manager of special products' sales. He has been closely identified with the plumbing and heating industry in various capacities for a number of years.

Natural Gas Conference

(Continued from page 16)

George L. Scofield, sales manager, Republic Light, Heat & Power Co., will act as chairman at the afternoon session on Tuesday. Aggressive dealers' cooperation is a salient part of sales programs of many utility companies. Frank J. Stiening, Hamburg Brothers, Pittsburgh, will discuss techniques employed by his company in selling gas refrigeration in today's highly competitive market. James F. Howley, manager of dealer relations, The Brooklyn Union Gas Company, has guided a most successful dealer program for his company for some years. He knows that realistic dealer participation pays *off* and he will give several reasons why this is true. The Home Service Departments have proven to be most valuable allies of the gas utilities sales departments and Jessie McQueen, home service counselor of A.G.A. will present a few of the many activities through which the Home Service girls promote domestic utilization of gas.

Natural gas is destined to play an ever-increasing part in our national economy. As the closing feature of the Conference, the Council will show a full color slide film, "Our Silent Partner" portraying natural gas from its development in the field to its ultimate use by the consumer.

Gas appliance manufacturers will be hosts to the Conference at a Friendship Room from 5:30 to 7:30 P. M. on both days of the Conference.

Clearing Drips and Services

(Continued from page 25)

those leads in which the accumulation is a gummy, semi-solid material.

Past experience showed some type of commercial solvent or live steam was required to remove this troublesome material. Replacing old methods, hand or rotary pumps, this unit incorporates an oil fired steam boiler directly connected to a reserve drip oil tank. This process of introducing hot drip oil in conjunction with live steam, directly into the service leads under pressure melts the substance. A vacuum pump then pulls it out and into the 500-gallon collection tank on the truck.

The steam boiler incorporated in this unit serves two purposes. Firstly, in heating the drip-oil and, secondly, in forcing the hot drip oil into the service leads under pressure. Also this truck incorporates the same effective vacuum producing equipment found in the standard drip truck. This unit can be used, not only in cleaning gas main drips, but also in freeing clogged service leads as described above.

Ruggedly constructed, the Whittington special has no delicate parts. It avoids the use of costly commercial solvents. The drip oil accumulated from the condensate collected in the gas mains can be substituted for these solvents.

Book Reviews

"Design for Welding," published by The James F. Lincoln Arc Welding Foundation, Cleveland 1, Ohio.; over 1000 pages, 5½" x 7½", profusely illustrated with photographs, drawings, tables and cost data; bound in semi-flexible simulated leather covers; price $2.00, postage prepaid in the United States; $2.50 elsewhere.

A significant record of the progress of arc welding throughout all industry during the post-war years.

The book is composed of abstracts of 82 award papers in the recent Foundation "Design-for-Progress" Award Program. The papers were selected and edited by Professor R. S. Green, Acting Chairman of the Department of Welding Engineering of the Ohio State University, Columbus, O.

In the preface of the book Professor Green states that he has prepared the book with the purpose of making available a record of representative welded designs. He has placed emphasis on projects produced and in operation with the objective of providing engineers and industry generally with a variety of ideas which may be adaptable to their own products or structures. A liberal presentation of cost data on the various designs is included, which afford a sound means of making a comparative study of methods.

Many of the papers describe the application of welding directed to the reduction of manufacturing costs and the improvement of quality and performance, which is the natural outcome of the widespread use of welded construction in many fields.

Each section contains papers describing outstanding accomplishments in some particular field. The Machinery and Structures section are especially strong and the quality of the papers evidences the advance in design in these fields.

Assisting Professor Green were associate editors Professor Douglas C. Williams and Professor Charles B. Smith, both of the Ohio State University, in addition to numerous consulting editors chosen from industry.

The Story of Magnesium, by W. H. Gross, American Society for Metals, 7301 Euclid Avenue, Cleveland 3, Ohio. 260 pages. 5" x 7½" Cloth $1.50.

Written in simple phraseology and has been reader-tested by the High School student. It is within the educational range of the High School student and of workers in Industry who do not have professional or technical training. The first in a series of Techbooks, written by outstanding Metal Engineers, and issued by the American Society for Metals.

According to W. H. Eisenman, National Secretary of ASM, the purpose of the new series is to provide young men and young women, not engineering graduates, with the technical information needed to properly understand the science of Metals as it is applied in Industrial production.

"Gas Tables." A new reference book by Professors Joseph H. Keenan and Joseph Kaye of Massachusetts Institute of Technology, John Wiley & Sons, 440 Fourth Ave., New York 16, N. Y. Price $5.00.

This book replaces the earlier volume by the same authors entitled "Thermodynamic Properties of Air." Like its predecessor, "Gas Tables" simplifies the computation of engineering problems involving air. The design of heat and power plants, gas turbine calculations, and related problems are made much easier by the use of the 64 tables in this book.

Professors Keenan and Kaye have added the properties of combustion products of hydrocarbons and their constituent gases in the form of new tables. They have also extended the tables analyzing the flow of compressible fluids.

Ebasco Services Appoints Frank B. McMullin

Frank B. McMullin, until recently vice-president and assistant general manager of Gas Consumers Association, has joined the rate department of Ebasco Services Incorporated, it was announced recently.

Prior to his affiliation with Gas Consumers Association, Mr. McMullin was in the employ of Philadelphia Gas Works where his services as staff engineer were interrupted by the war. He served as a Lieutenant Colonel of Field Artillery in the Asiatic-Pacific Area.